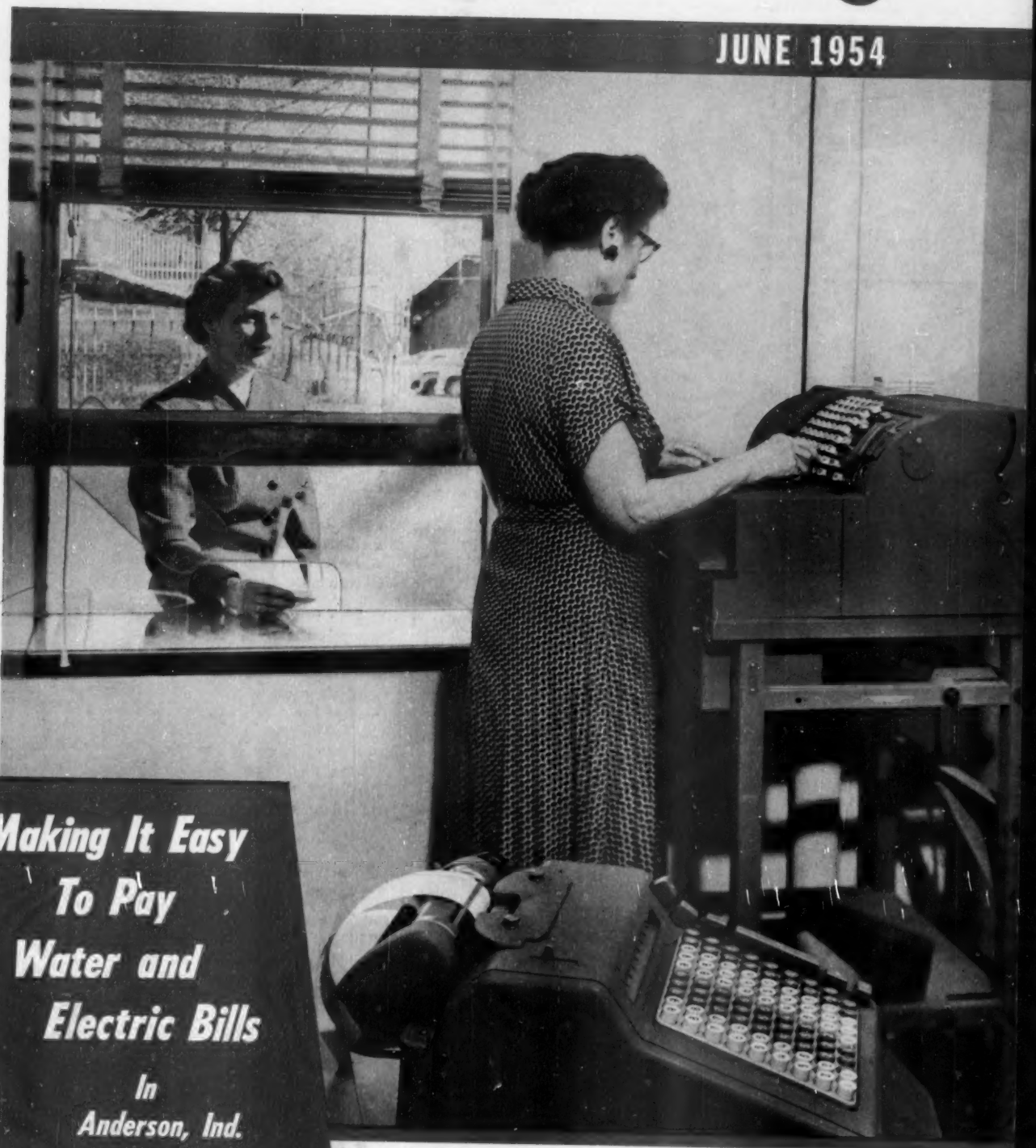
The American City

JUNE 1954



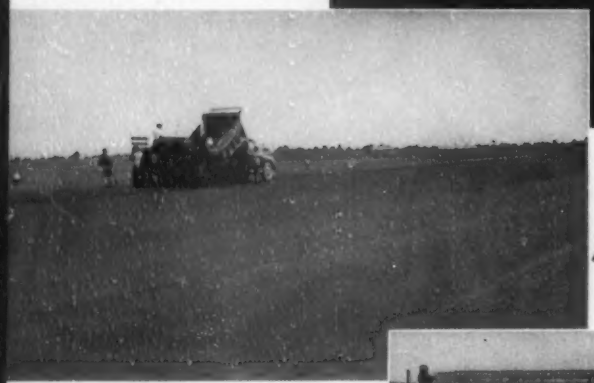
Making It Easy To Pay Water and Electric Bills In Anderson, Ind.

Payment of bills at a "drive-in" or "walk-up-to" window is an example of the progress that this city has made in modernizing all phases of utility accounting.

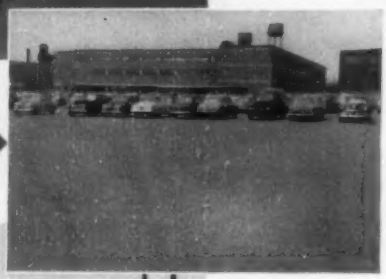
(See pages 108 and 109.)

An all-purpose pavement for cities

STREETS



AIRPORTS



PARKING AREAS

BRIDGES

American cities, more than 1,500 of which have constructed resilient Texaco asphalt paving, have found it to be an effective, all-around answer to their paving problem. Whether laid on the municipal airport's runways, important city streets, bridges or parking areas, city officials have found that the ability of a Texaco asphalt pavement to absorb the heaviest impact, plus its low upkeep cost, strongly recommend its use wherever pavements are needed.

The number of types of Texaco asphalt construction make it possible to choose the one best suited to the requirements of each city. Such factors as available aggregate, distance from an asphalt mixing plant and traffic volume to be served have a bearing on the type of pavement to be selected. Familiarity with the various types of asphalt construction, including the materials and methods employed in each, would be helpful to the city official with a paving problem to solve. This information is available in two Texaco booklets, which can be secured by any interested municipal official without obligation by writing our nearest office.

During the past half-century, 4 out of 5 cities east of the Rockies with a population over 25,000 have paved with Texaco asphalt—best proof of its satisfactory performance under widely varying traffic and climatic conditions.

THE TEXAS COMPANY, Asphalt Sales Dept., 135 E. 42nd Street, New York City 17

Boston 16 Chicago 4 Denver 1 Houston 1 Jacksonville 2 Minneapolis 3 Philadelphia 2 Richmond 19

TEXACO

REG. T. M.

TEXACO ASPHALT

JUNE 1954

The American City

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Long Distance calls now cost you less

Recent reduction in federal excise tax means a substantial saving for you on every Long Distance call

The reduction in the excise tax from 25% to 10%, voted by Congress, is good news for Long Distance users. It means that every Long Distance call – to anywhere in the country – now costs you less than it did before April 1.

Basic rates remain the same. What you save is the difference between the old and the new tax. Every bit of the tax reduction goes to our customers. The telephone company does not keep any part of it.

Now you can use Long Distance in your business even more profitably than before.

LONG DISTANCE RATES ARE LOW

Some typical examples:

Philadelphia to New York	**50¢**
Indianapolis to Cincinnati	**55¢**
Cleveland to Chicago	**$1.00**
St. Louis to Baltimore	**$1.50**
San Francisco to Washington	**$2.50**

These are *daytime* Station-to-Station rates for the first three minutes. They do not include the new, lower federal excise tax of 10%.

BELL TELEPHONE SYSTEM

Our Municipal Notebook

President Signs Large Highway Aid Bill

PRESIDENT EISENHOWER has approved the federal-aid highway bill providing $1,932,000,000 for building and maintaining state and federal highways, to be expended over a two-year period beginning July 1, 1955.

The bill provides for the use of all federal gasoline tax proceeds for highway improvement purposes. The authorized expenditures are about $400,000,000 a year more than under the present law.

The major features of the bill authorize $700,000,000 for grants to states on a matching basis for primary rural, primary urban, and secondary systems for each of the fiscal years, 1956 and 1957; $175,000,000 annually for the improvement and expansion of the national interstate highway system; and $81,000,000 annually for other miscellaneous highway purposes.

Of the $700,000,000 in matching grant funds, $315,000,000 will go to primary roads; $210,000,000 will go to secondary roads; and $175,000,000 will go to urban roads.

Federal funds for the urban system may be used only on federal-aid system roads in urban areas. Allocations for the secondary system may be spent in municipalities under 5,000 population not in urban areas, and on urban projects in states that have a population density of 200 or more per square mile.

EDITOR'S NOTE: A new report, "The Federal Aid Highway Act of 1954 — How Municipalities Obtain $350,000,000 Federal Aid," by Randy H. Hamilton, is available for 50 cents from the American Municipal Association, 1313 E. 60th St., Chicago 37, Ill.

Large City Mayors Join In Statement on Housing

THE MAYORS of 16 of the nation's major cities, whose populations total 17,490,000 joined in a simultaneously released statement to Congress on May 6th requesting that the federal housing program be enlarged as it "falls far short of meeting America's housing needs," and declaring that the federal government must continue to lead the fight against blight.

Federal action is necessary if the housing problems in cities are to be solved, the mayors declared, for these two reasons: first, the scope of the housing job is beyond the money sources of cities; and, second, the cities' resources are limited by the action of the federal and state governments in preempting most of the main tax-revenue sources. The mayors urged passage of the Housing Act of 1954, and a public housing program for this year of 200,000 units.

The cities whose mayors signed the statement were: New York, Philadelphia, Milwaukee, Denver, New Orleans, Louisville, Atlanta, Minneapolis, Pittsburgh, Providence, St. Louis, Baltimore, Buffalo, San Francisco, Knoxville, and Seattle.

Employees Report Defects They See in City Services

MORE THAN 250 EMPLOYEES of Kansas City, Mo., now report defective conditions that they see on trips around the city, often before hazards and breakdowns in service have become annoying enough for other residents to complain to government officials.

The 266 persons chosen to keep an eye out for defects in city services include the city manager, department and division heads, inspectors, foremen, and meter readers, according to the International City Managers' Association.

During the first three months that the plan was in use, 500 reports were filed. The three conditions most often noted were leaky water mains, damaged street paving, and damaged traffic signs. Others frequently reported were leaky fire hydrants, cracked sidewalks, defective wiring, and broken traffic signals.

Each member of the reporting system carries forms in his car or pocket. When he sees a condition that needs correction, he fills out a form and turns it in to his division or department supervisor who then sends it to the proper office for attention.

The department correcting the condition makes a report on the action taken and forwards the completed form to the research and budget department for analysis and subsequent tabulation.

THE AMERICAN CITY

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Carl Eric Carlson, Associate Editor • **William T. Dulac**, Associate Editor

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VOLUME 69, NUMBER 6

THE AMERICAN CITY is issued monthly by THE AMERICAN CITY MAGAZINE CORPORATION Subscription $4 per annum in any part of the world. Single copies, 50 cents. Back copies, $1. Entered as second-class matter, July 20, 1910, at the Post Office at New York, N. Y., under Act of March 3, 1879. Printed in the U. S. A. THE AMERICAN CITY is indexed regularly by Engineering Index, Inc., and the Readers Guide to Periodical Literature.

One machine does the whole job

Light work, heavy work—digging, loading, grading, pioneering—the Cat* No. 6 Shovel is built to do it easily, quickly, at low cost.

The unit shown here is part of the all-Caterpillar fleet owned by the Street Department of Great Bend, Kansas. It's cleaning out a 4-mile drainage ditch from the airport to the Arkansas River. Removing trash and brush, digging to grade and filling in washouts along the sides require about a month of rough, dusty work.

The Caterpillar No. 6 Shovel is a unique tool in many respects.

It's designed as a *unit*, perfectly balanced. The full length of the track stays on the ground, no matter what the load.

Bucket capacity is large—two heaping yards—and the bucket and lift arms are sturdily built to last.

The powerful, dependable Cat Diesel Engine uses low-cost No. 2 furnace oil without fouling injection valves and operates through an oil clutch that adds to life, reduces maintenance costs.

What's more, the versatility of this machine makes it a year-round workhorse that can save time and money on dozens of different municipal jobs.

Your Caterpillar Dealer will gladly give you a working demonstration of the No. 6 Shovel. And he stands back of its long, profitable work life with genuine parts and reliable service. Call him today.

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NIMLO Issues a Model General Licensing Ordinance

THE National Institute of Municipal Law Officers has published a model general licensing ordinance wherein are set forth the various general principles and provisions to the municipal licensing of businesses.

When used as a base, the general licensing ordinance enables a city to thereafter draft short particularized licensing ordinances without constant repetition of a large bulk of procedural and other matters. Reasonable conditions, including good character and fitness of licencees and permittees, can be imposed on the granting and on the holding of licenses and permits under the police power. Thus, an ordinance may provide that a licensee or permittee must observe and comply with all applicable city ordinances, or that his license shall not be issued until he has paid his city personal tax for the preceding year, or unless is business premises comply with requirements for the issuance of that license.

Further information about this model ordinance may be obtained from the NIMLO headquarters, 730 Jackson Place NW., Washington 6, D. C.

Civic Group Provides Community Source Book

MORNINGSIDE HEIGHTS, INC., a nonprofit organization sponsored by 13 neighborhood religious, educational, and medical institutions, and dedicated to the physical and social improvement of the Morningside Heights area of New York City, has prepared a *Source Book of Agency and Group Programs* as a service to the community. This 82-page book lists all schools, churches, medical and social facilities, and business establishments in the area. It describes the function of each institution and agency, gives telephone numbers and addresses, contains a map of the area, tells where to go for recreation, for social, welfare, medical and education services, and it should be invaluable to the agencies, institutions, and residents of Morningside Heights.

Included in the *Source Book* is a "Directory of Community Facilities and Services" available to residents of Morningside Heights (containing the type of information one would find in a classified telephone directory). This directory is also being printed separately and may be obtained at 10c a copy.

The *Source Book* itself is being distributed to each agency or group listed in it, so that these organizations may know more completely what is available in the area they serve. Additional copies are for sale at $3 each by Morningside Heights, Inc., 90 Morningside Drive, New York, N. Y.

Here is an idea worth adopting by community organizations in other cities.

New Organization Urged For Urban Counties

THE COUNTY, as commonly organized is poorly suited to assume the municipal functions demanded from it by the urban population that lives outside the borders of central cities.

That opinion comes from Victor Jones, professor of government at Wesleyan University, Middletown, Conn., writing in the May issue of *Public Management*, monthly magazine of the International City Managers' Association. His article, "Urban Counties—Suburban or Metropolitan Governments?", is based on information about the governmental activities of 174 U. S. counties with populations of 100,000 or more. The information was collected by the association for a new section on urbanized counties in its *Municipal Year Book* for 1954.

About 65% of all U. S. counties are governed by a board of supervisors or commissioners, responsible for activities specifically imposed on them by their state legislature and state constitution.

For the nation's 2,800 rural counties, the traditional "magisterial" form of government may be all right, according to Mr. Jones. But for the 174 urban counties, in which nearly one-half of the country's population lives, he says that a "managerial" form of government is needed before they can function successfully as metropolitan governments.

"This will require the establishment of a representative and responsible county legislative body, the creation of a county executive, and the organization of county work in units responsible through the executive to the county legislative body," Mr. Jones writes.

Thus far, however, single-headed county executives are a rarity, the association's figures show. Of the 174 counties surveyed, only 18 have such an executive.

These 10 have a county manager: Anne Arundel (Baltimore), and Montgomery (Washington, D. C.), Md.; Arlington (Washington, D. C.), Va.; Durham and Guilford (Greensboro), N. C.; Fulton (Atlanta), Ga.; Monroe (Rochester), N. Y.; and Sacramento, Santa Clara (San Jose), and San Mateo (San Francisco), Calif.

Other counties to have a single county executive are: Westchester and Nassau, N. Y., where the executive is elected, and Cuyahoga (Cleveland), Ohio, and Alameda, Contra Costa, Solano, Los Angeles, San Bernardino, and San Diego, Calif., where chief administrators for county government are appointed.

Every Dog Accounted For

IN A TALK given at the recent Annual Meeting of the Association of Towns, Harriet Washer, Town Clerk of Kingsbury, N. Y., told of the procedure adopted by her office for licensing Kingsbury's 1,100 dogs.

The jobs of dog enumerator, town constable, and town dog warden are filled by the same person, who is also a member of the village police force. This combination official cooperates fully with the town clerk's office in checking and preparing dog-license applications.

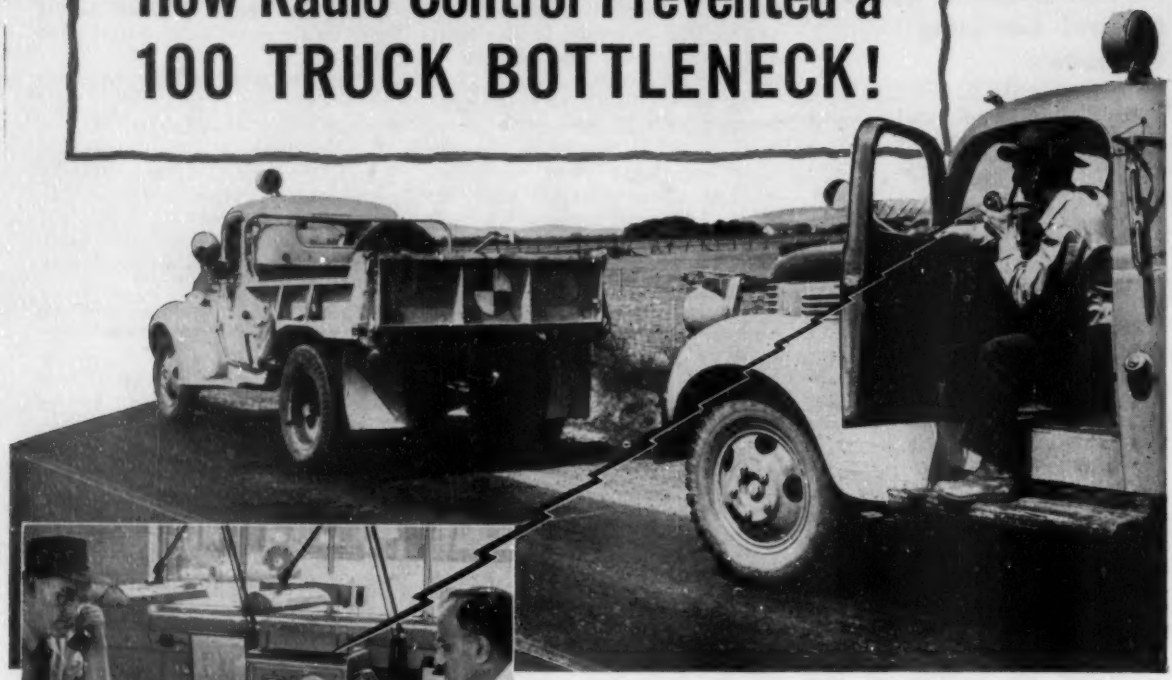
During the months of August and September, when things are fairly quiet in the clerk's office, a duplicate set of dog-license applications is typed from the cards of the current year. Then, during January and February, when dog licenses must be renewed, if John Doe comes in for his dog license and does not have his application made out or even with him —as is often the case—the clerk goes to the file, pulls out his new card, asks Mr. Doe to sign, if it is for the same dog, and the clerk is all set to write the license.

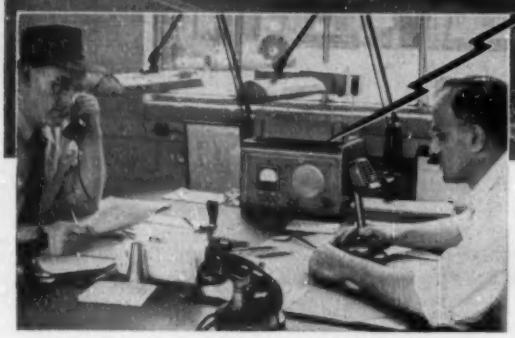
Where the owner does bring in his application card properly made out, the clerk accepts it, issues the license, and then staples the application to the card already in the files.

When it comes to the list of delinquent owners, the dog warden helps the clerk's office contact these people. So effective has been his cooperation that in the past seven years not a single summons has had to be issued. Yet every dog has been accounted for.

2-WAY RADIO IN ACTION—NO. 4

How Radio Control Prevented a 100 TRUCK BOTTLENECK!





Dispatcher at headquarters receives report of road-block along planned route . . . flashes word to trucks enroute.

Motorola 2-way Radio

. . . more efficiency, lower costs through radio communication

A close call with not a moment to lose!

Only Motorola 2-way radio on the alert supervisor's truck prevented a $1200 loss on the job.

As it turned out, the trucks were quickly rerouted—saving approximately 150 truck-hours (at $8.00 per unit per hour.)

That's only one instance. Here are other ways Motorola saves and pays: (1) Provides instant, pinpoint command of all operations, even in remote locations; (2) Permits quick solutions to emergencies of all kinds; (3) Facilitates materials handling and materials delivery; (4) Allows maximum, split-second flexibility; (5) Increases coordination and efficiency and decreases "lost time"; (6) Helps to do the job *better* and *faster . . . at lower cost!*

For the finest of equipment — backed by more than 25 years experience in mobile radio —plus the finest and strongest national service organization in the field, insist on Motorola 2-Way Radio!

national **Motorola** RADIO COMMUNICATIONS service

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434 U. S. Cities Extend Borders

A TOTAL of 434 U. S. communities extended their borders by annexation or consolidation during 1953.

That figure exceeds by 32 the number of annexations or consolidations in 1952, the year that had recorded the greatest amount of such activity since the early 1930's. The statistics are drawn from the 1954 *Municipal Year Book*, published this month by the International City Managers' Association.

Total Number of Square Miles Annexed in 1953

More than 280 square miles were annexed altogether during 1953. But only four cities acquired more than 10 miles. They were Tampa, Fla., 46 square miles; Seattle, Wash., 15.29; Midland, Mich., 14.8; and El Paso, Texas, 11.88.

Of municipalities with populations of 5,000 to 10,000, 168 annexed 54 square miles, averaging 3/10ths of a square mile apiece, whereas 226 more populous communities — with populations of over 10,000—totaled 228 square miles of annexation, for an average of 4/5ths of a square mile apiece.

Significant features reported include the large percentage increase in area size of several communities and the high population density of some annexed areas.

For example, Tampa's addition of 46 miles to its original 19 meant a 242% gain in its area size and upped its population by 95,000. Seattle's record of 56,347 new residents gives it a place second only to Tampa in registering the largest population increase in the last six years.

Midland, Mich., expanded area-wise by 172%. The girth of Gainesville, Ga., spread by 117%, of Louisville, Miss., by 116%, and of El Paso by 40%. Long Beach, Calif., added 32,000 to its population. Modesto, Calif., increased its population by 10,750.

Individual Annexations

Individual annexations were generally small, however. Only three cities acquired 4 square miles or more in one annexation: Midland, 14.8, Memphis, Tenn., 4, and Colonial Heights, Va., 4.

"Overly stringent, tortuous and antiquated state annexation laws" are blamed by John C. Bollens of the department of Political Science, University of California, for small annexations. Mr. Bollens gives that opinion in his article, "Metropolitan and Fringe-Area Development in 1953," written for the *Year Book*.

Because of the outmoded laws, approximately three-fourths of 97 reporting cities needed to make two or more annexations, Mr. Bollens says, adding that the average number amounts to 5 annexations a city. The average soars because of situations reported by several widely scattered cities: Milwaukee last year made 43 annexations to acquire 2½ square miles; Dallas, Texas, made 27 in order to gain 5. Fresno, Calif., with 23, Mountain View, Calif., with 20, Ann Arbor, Mich., with 19, and Roswell, N. M., with 12, all acquired less than one square mile.

Municipal Parking Lots and Traffic Engineering

A TOTAL OF 554 out of 892 reporting cities with populations over 10,000 own and operate one or more municipal off-street parking lots, according to data gathered by the International City Managers' Association late in 1953 for the 1954 *Municipal Year Book*, just published.* These cities operate a total of 1,747 city-owned lots—an average of 3 per city.

The *Year Book* lists the 554 cities and shows for each the official responsible for traffic engineering, the number of city-owned lots and parking spaces, methods of financing off-street parking, department responsible for parking-lot operation, practices with regard to parking meters and parking charges on city-owned lots, and other traffic and parking data.

Traffic Engineering. Out of 444 cities reporting, responsibility for traffic engineering is assigned in 153 to the city engineer and in 126 to the traffic division of the police department. Fifty-nine cities engage a full-time traffic engineer. Twenty-eight cities divide the traffic function between the police department and the city engineer, while 21 cities make the public works department responsible for traffic functions other than enforcement.

Parking Lot Operation. Of 494 cities reporting, 187 cities place responsibility for parking-lot operation in the police department. Another 148 cities make parking lot operation a function of the public works department. Twenty-eight cities have a special board, commission, or authority to handle parking-lot responsibilities. The finance officer is responsible for parking lots in 26 cities, the city engineer in 23 cities, and a traffic engineer in 22 cities.

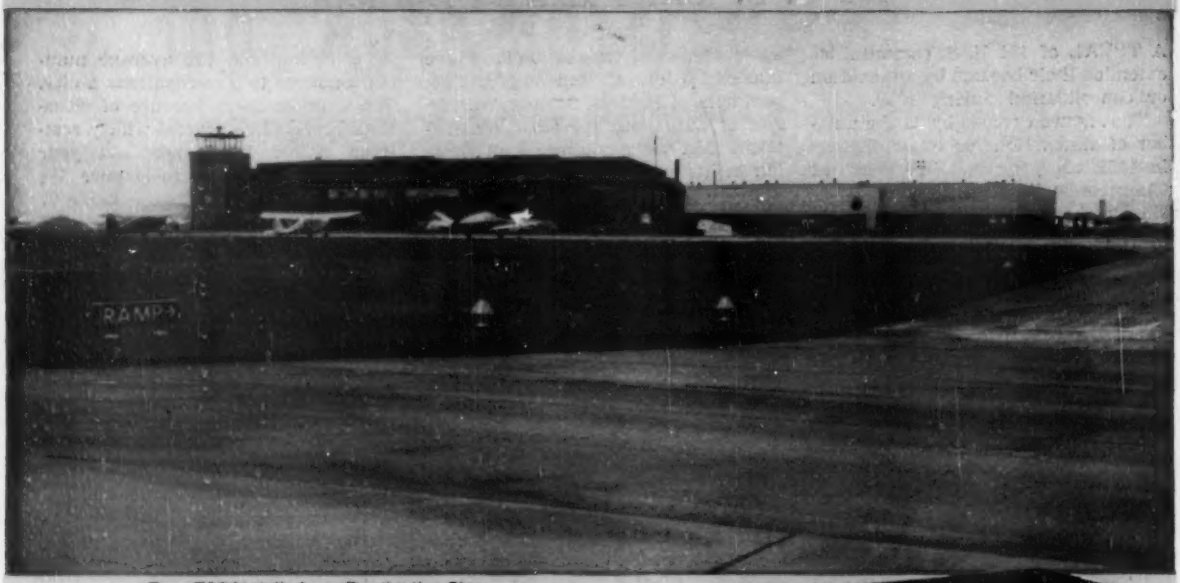
Methods of Financing. Forty-five per cent of the cities that owned parking lots—251 of the 554 cities—reported to the *Year Book* their methods of financing municipal lots acquired in 1953. In 136 of these cities parking lots were financed from parking-meter receipts, in 41 by general taxes, and in 11 by a combination of parking-meter receipts and general taxes. Eighteen cities used revenue bonds, 9 used general obligation bonds, 7 used general obligation bonds backed by parking-meter revenues, and 29 used some combination of these or other methods. The seven cities using general obligation bonds backed by parking-meter revenues were Albany, Lockport, and Mt. Vernon, N. Y.; Beaver Falls, Pa.; Hutchinson and Salina, Kans.; and Englewood, N. J.

Parking Charges. Of the 554 cities that operated parking lots in 1953, 541 reported their practices in parking lot charges. Of these cities, 260 had parking meters on one or more lots, 28 charged for parking on unmetered lots, presumably with an attendant on duty, and 253 indicated they allowed free parking on all lots. Cities of 10,000 to 25,000 accounted for most of the free parking, with 190 cities reporting free parking on all lots. They also accounted for 40% of all cities with parking meters on at least one lot.

* See page 171 of this issue.

Speed up traffic on YOUR airport with

CROUSE-HINDS Taxi Guidance Signs



Type TGS Installed as a Destination Sign

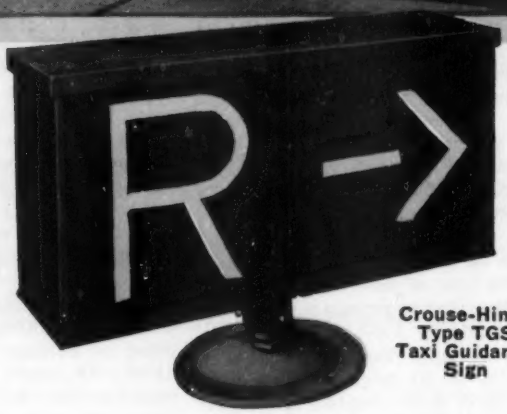
Release tower operators from a "traffic policeman's" duties . . . night and day.

The use of Crouse-Hinds Type TGS Taxi Guidance Signs provides a system of taxiway guidance that shows the pilot his location at each intersection and tells him exactly how to reach his destination. This relieves the tower operator of most of the work of directing ground traffic and leaves him free to concentrate on his real job . . . . directing airborne traffic.

The layout of a sign system should conform to CAA Technical Order TSO-N23. Destination signs are placed on the far side of an intersection, showing a destination symbol and an arrow. Intersection signs are placed on the near side of an intersection, showing numbers to identify runways or letters to identify taxiways.

The sign replaces the "entrance-exit" light which is normally at the start of a line of taxi lights. *An existing taxi light can be easily converted to a guidance sign.*

The housing is of lightweight, aluminum, box-type construction, mounted on one or more breakable couplings, all in accordance with CAA Specification L-829. Each number or symbol is in a 14-inch square interchangeable cast aluminum panel. The numbers are made with an orange-yellow plastic on a black background that gives excellent legibility in the daytime or when lighted at night. Signs vary in length from one to six sections. Each section is detachable so signs are easily converted from one size to another.



Crouse-Hinds Type TGS Taxi Guidance Sign

These signs are built to Crouse-Hinds high standard of quality . . . to give years of dependable service.

Now is the time to plan the installation of a taxi guidance system for your airport. Send for additional information.

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City-University Cooperation Yields Good Results in E. Lansing

By JOHN M. PATRIARCHE
City Manager
East Lansing, Mich.

NEARLY a half-dozen major projects —including fire and police protection, and sewage and garbage disposal— are being operated on a "50–50" basis by Michigan State College and the community of East Lansing. By working cooperatively we have been able to provide advantages to both the college and East Lansing that could not have been achieved separately.

Outstanding among the cooperative services is the $500,000 sewage-disposal plant, which serves both the college and the city. The capital investment was shared by the city and the college on a 50–50 basis. In addition, the college and the city share the annual maintenance and operational budget, which totals about $42,000 a year. This is divided on a use basis, with the college paying about 65% and the city 35%.

A new experimental garbage composter is another share-the-expense operation of the college and the city. The city has invested $5,950 in the composter, which was developed by Michigan State College research, and furnishes a man to operate the machinery. The city benefits by having its garbage composted and also shares in fertilizer by-products of the composter.

The second largest joint operation is the fire department, which is operated by the city and which has stations in both East Lansing and on the college campus. The total capital outlay for fire-department equipment is about $35,000, spread on a 50–50 basis. Operation and maintenance are shared on the same basis for a total annual cost of about $76,700.

College and city police and the fire department share the same radio transmitter. It cost $1,200, and was paid half by the college and half by the city. Annual maintenance is also shared jointly. Also, the college contributes $2,000 annually to the East Lansing police-department budget for assistance and cooperation.

City and College Water Systems

In event of water failure in either the city or the college, one system can furnish water to the other's system through a connection set up on a cooperative basis. The college and the city each has its own wells and water system, but the two systems are joined with a valve and meter.

A small but important project is that of testing the city's water supply by the college's department of bacteriology at a cost to the city of $150 a year.

Although 2½ square miles of the campus are within the corporate limits of the City of East Lansing, the college provides many of its own services.

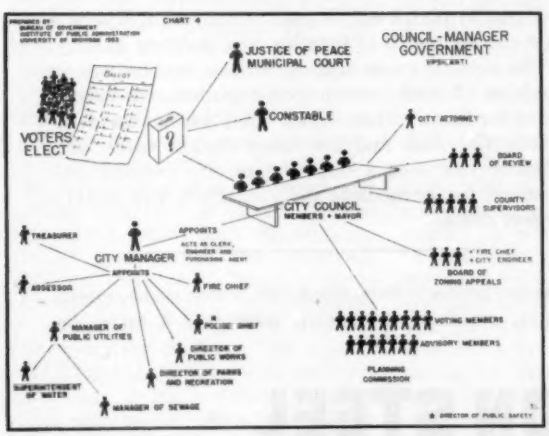
College police are a separate organization responsible to President John A. Hannah and the State Board of Agriculture, governing body of the college. The campus police has its own chief, Arthur Brandstatter, who is a member of the Michigan State College faculty. The college has its own fire inspector, who is a member of the college police department.

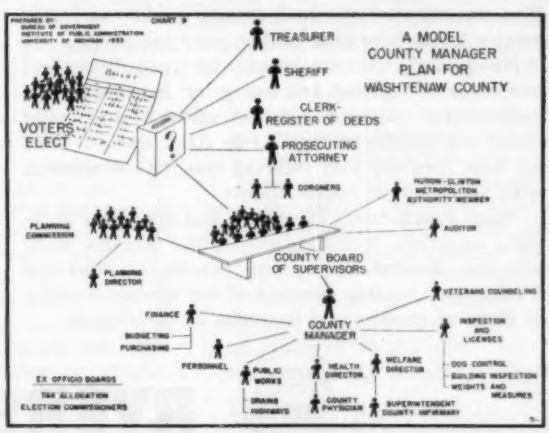
The State Board of Agriculture passes ordinances and other regulations which govern behavior on the college campus. As a matter of practice, the city police assume no jurisdiction over the portion of the city which is the campus, and the college police assume no jurisdiction off the campus.

City and college inspectors conduct jointly each year in East Lansing an annual safety and fire inspection of student living units.

EDITORIAL NOTE: On this subject of City–University Cooperation, see also "When Town and Gown Get Married," in THE AMERICAN CITY for March 1954, page 13.

Study Kit on City and County Government





A compact and useful study on Michigan local government has been prepared by the research staff of the Bureau of Government, Institute of Public Administration, University of Michigan. It features a set of 11 charts, two of which are shown here, and a booklet with information on city government, township government, county government, the judiciary, and property tax process. The kit wisely points out that the structure of local government, which should not be changed without careful thought, is important only as it helps or hinders the carrying out of governmental *functions*. (Copies of the kit may be ordered from the University of Michigan Press, 311 Maynard St., Ann Arbor. Price per copy, 75 cents.)

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Los Angeles and Dayton Install Effective CD Communications Systems

One of the three truck trailers which house master control stations in Los Angeles' civil defense communications system.

Robert F. Zimmerman, of Dayton communications division, explains control center use of Radio Apparatus Corp. DR-200's.

LOS ANGELES AND DAYTON are two cities that count heavily upon effective civil defense communications systems for help in disasters and other emergencies.

The Los Angeles system, believed to be the largest of its type, ties together the city's commissioners and executives; municipal departments, such as public works, fire, police, health, transportation, water and power, and harbor; private companies operating radio-equipped vehicles, such as taxicabs and electric utilities; the Red Cross; and a vast network of volunteer amateur radio operators.

General Electric radio equipment is used throughout the system, built around four master-control stations —three of them contained in trailer trucks, and the fourth a permanent installation adjacent to the coliseum. Each such station is equipped to transmit and receive messages from any part of the communications network, which includes, in addition, 150 radio-equipped automobiles and trucks, two-way radios, 100 walkie-talkie-type units, and 60 medium-power transmitting and receiving stations installed at fixed locations throughout the city. A microwave radio transmission system, installed between City Hall and Mt. Lee in the Hollywood Hills, allows the Commissioner of Public Works to maintain radio contact with his far-flung forces via high-power transmitting and receiving equipment installed on Mt. Lee.

Nerve center of the communications service division of the important control center in the highly efficient Dayton, Ohio, civil defense program is a rack of Radio Apparatus Corporation's DR-200's, two-band communications receivers (shown above), which enable the division to keep in touch with all vital areas of information in the vicinity. The Dayton CD program, under the direction of Director Jack C. Gault, is considered to be one of the best in the country.

New Weapons Bring Local Resurge of CD Interest

THE ARTICLES by Mayor Frank Zeidler of Milwaukee and Mayor Arthur Meehan of Spokane, on pages 120-121 of this issue, reflect the growing municipal concern with the "new look" for Civil Defense necessitated by the announcement of the H-bomb and its effects.

Municipal support is mobilizing for a joint resolution (H. J. Res. 491) introduced in the House of Representatives by Congressman Chet Holifield of California, which calls for the Federal Civil Defense Administration to be reorganized as an executive department of the federal government headed by a Secretary, and for the Secretary of the newly created department to have membership in the National Security Council. There is also interest in the formation of a continuing Joint Congressional Committee on Civil Defense as another step toward securing adequate national recognition.

Several municipal and civic organizations have requested basic re-evaluation and reorganization of Federal Civil Defense Administration activities, including the U. S. Conference of Mayors and the American Municipal Association. There is also growing dissatisfaction with the assumptions underlying the nation's continental defense, and the proposed warning systems, and particular demands from municipal officials that there be adequate and straightforward releases of public information about atomic-hydrogen-nerve gas weapons and other methods for annihilation of organized society.

The Civil Defense Research Associates, of New York,* which serves as a national forum and clearing house for civilian and industrial protection, has embarked on a renewed effort, through several effective panels and forums with top CD experts, to promote widespread interest in the public implications of "Civil Defense in the Hydrogen Age."

Many municipal officials recognize that:

1. Municipal governments have an especially important role in the na-

* Founded in 1943 as a nonprofit membership organization; located at 475 Fifth Ave., New York 17, N. Y.

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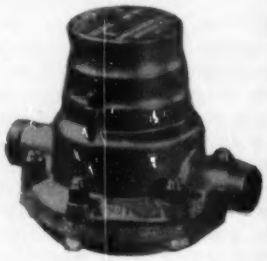
These features, plus a competitive price, sold us on AMERICAN METERS. They're standard with us now . . . and saving us time and money, too!"



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tion's ability to survive in the event of another war, and in sustaining the productive potential, to which individual life and property preservation will be subordinated.

2. Municipalities must be self-sufficient as far as possible in their programming, but, because of greater destructive potentialities of atomic-hydrogen weapons, must maintain close coordination with neighboring municipalities at every stage of CD training and operations.

3. Effective training for dispersal and evacuation cannot be delayed, including special provisions for traffic planning and panic control.

4. Public information programs must be focused on the need to help our neighbors, as well as ourselves, in any emergency.

5. All municipal efforts are limited and there must be effective national and international action, particularly to develop a greater sense of understanding and responsibility among people and nations, and continued development of an effective body of international law and order.

City Wages Boosted

ACCORDING TO a survey of 53 cities, mostly under 100,000 population, conducted by the International City Managers Association, most cities raised the pay of some or all of their employees during 1953.

Twenty-nine of the 53 cities reported general pay hikes affecting all workers. Ten cities said they raised the pay of some employees. Three cities said they adopted new pay plans which meant varying salary increases for most employees.

Reduction in the working hours was reported by 6 of the 53 cities. Six others added to the vacation allowances for workers.

CORRECTION

On PAGE 127 of the May issue of THE AMERICAN CITY an illustration to the article "Regional Shopping Centers" was inadvertently captioned "Customers approach Westgate from many directions. . . ."

This should have read "Customers approach Northland. . . ." Our regrets to Westgate, Northland, and our readers!

A Small-Town Newspaper Appraises Council-Manager Government

IN DECEMBER 1953 — five months after the inauguration of council-manager government in the little city of Southern Pines, N. C. — the local newspaper, *The Pilot*, began a series of six articles on the problems and accomplishments of the new administration, concluding the series early in April.

The Pilot reminds citizens that the accomplishments at Town Hall were intended by City Manager Tom E. Cunningham "to get all services running on a clear, business-like system, with the greatest possible economy." What has been done is in the realm of procedure, not production, and is, therefore, largely invisible. The public, it is pointed out, would much more easily understand and recognize physical improvements, such as new buildings or major additions to the city's public-works equipment.

Accomplishments Summarized

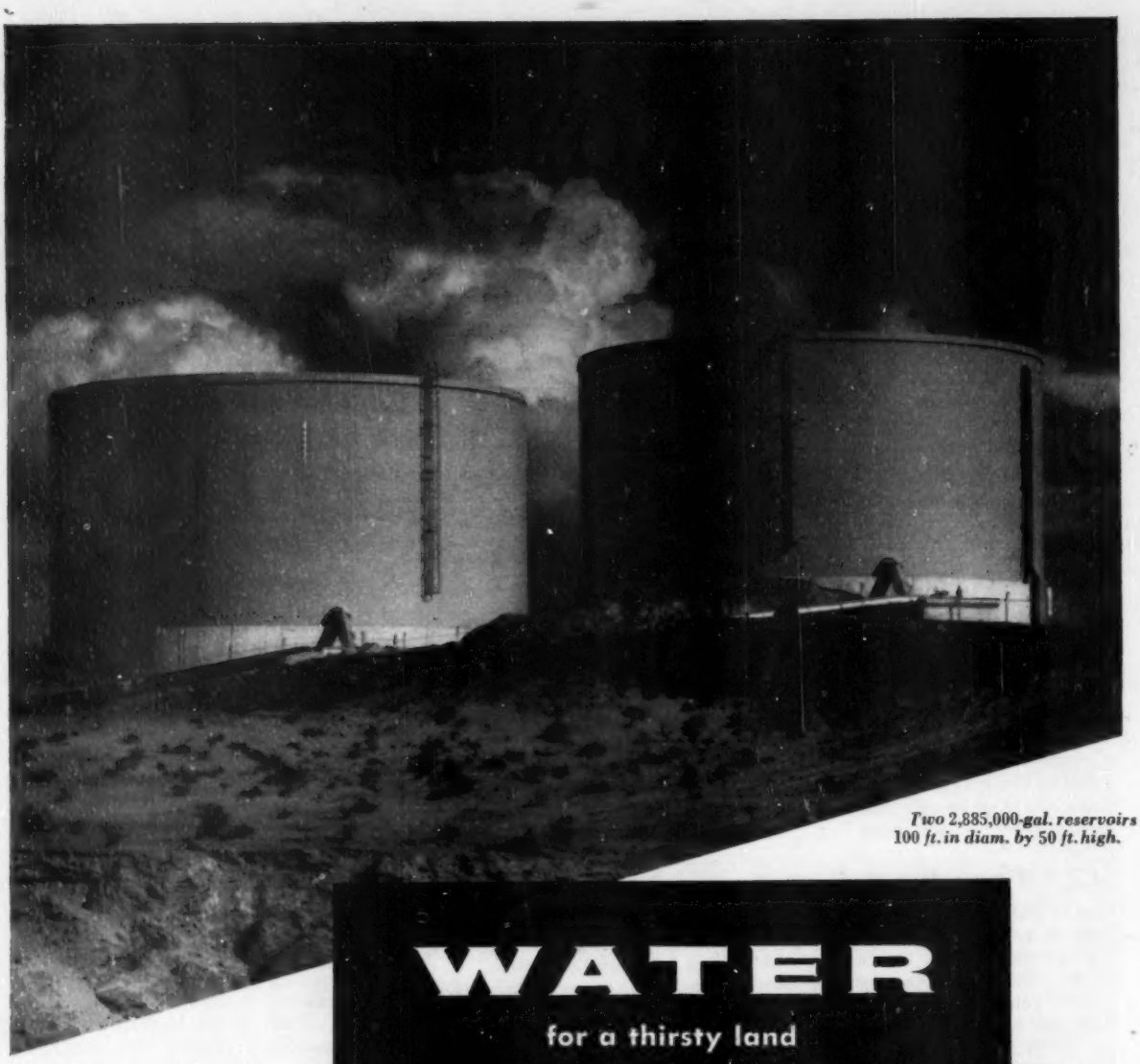
In these articles, the administration's accomplishments are summarized as follows:

- Enlistment of citizen participation in government through the Citizens Advisory Committee.
- Assurance of future orderly development of land use through a comprehensive modern zoning ordinance geared to the peculiar needs of the town.
- Institution of competitive bidding and quantity buying on as many as possible of the 2,000-odd items the town buys yearly, with savings of hundreds of dollars so far.
- A host of improvements in office procedure, aimed at clearly defining the cost of all municipal services, at getting maximum efficiency from both the employees and the office machines at town hall, and starting and maintaining accurate and complete records of all financial transactions and of such matters as sewer connections, property ownership and other vital information heretofore recorded incompletely or not at all.
- The new refuse law; enforcement of parking ordinance; new employee bonding and insurance methods that give more protection at less cost; and remodeling of Town Hall to permit larger attendance at council meetings by increasing seating facilities, thus also encouraging citizen attendance and participation in council meetings.
- The enactment of measures to put the sewer utility, the water utility, and the fire department on a business-like basis, which are called the three major accomplishments. Of these possibly the most important is the institution of a sewer service charge that partially removes the burden of operating the system from the taxpayers—many of whom do not even use the sewers—and places it on property owners in proportion to their use of the sewer system. Equalization of water rates for consumers makes the rates for all out-of-town consumers 50% higher than for in-towners. Contracts are now being signed between property owners living within two miles of the town limits, by which fire protection service will be extended to their properties on payment of a reasonable service charge.

Where Credit Is Due

All of the measures and changes discussed are described by the newspaper as "forward-looking measures whose effects will be felt, often with increasing benefits, for years to come." In its final article on the council-manager administration, *The Pilot* repeats with conviction a statement from the first of the series: "The muddle that has to be straightened out is simply a matter of growing pains. Every town must go through some similar reorganization and overhauling of methods. . . . Let's hope that we never get so big that we lose the personal interest in our town that our people have today."

Responsible for the new administration's program are members of the council — Lloyd T. Clark, who is mayor; Walter E. Blue, Voit Gilmore, Joe O'Callaghan, and Charles S. Patch, Jr., with the cooperation of City Manager Cunningham. *The Pilot* comments that members of the council "individually have differing opinions and varied ideas, yet have united to launch in Southern Pines a solid and far-reaching program for healthy municipal development."



Two 2,885,000-gal. reservoirs 100 ft. in diam. by 50 ft. high.

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Cleveland 15	2236 Midland Bldg.	Salt Lake City 4	501 West 17th South St.
Detroit 26	1501 Lafayette Bldg.	San Francisco 4	1533—200 Bush St.
Havana	402 Abreu Bldg.	Seattle 1	1301 Henry Bldg.
Houston 2	2101 C & I Life Bldg.	Tulsa 3	1625 Hunt Bldg.

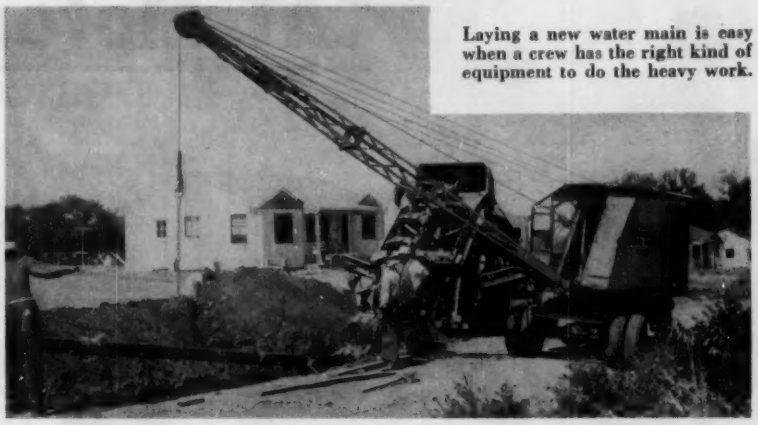
Water Supply & Treatment

Nine Men Lay Mains Faster Than Sixty

A FEW YEARS AGO, the Denver (Colo.) Water Department required the services of a crew of 60 men to make installations and keep the water system in good repair. Today, these jobs are performed by nine men and two machines which are versatile enough to perform a variety of jobs. Furthermore, Superintendent Carl Anderson finds that this new setup is able to lay water mains five to six times faster than was possible by the old routine.

The machines are a Parsons trencher and a Quick-Way shovel. The truck-mounted shovel is capable of placing the mains in the trench and then backfilling by means of an extra-wide attachment that hurries the operation along. It has been the practice of the water-department crews to use an "A" frame derrick for placing the pipe. The other alternative had been to do the work by hand.

The convenience of the truck-mounted shovel is a great advantage, Mr. Anderson believes. This unit can be changed quickly from a dragline to a clamshell, a power shovel, or a backhoe. Denver's municipal water works have seven of these units in use, permitting reduction of the large labor force employed.



Laying a new water main is easy when a crew has the right kind of equipment to do the heavy work.

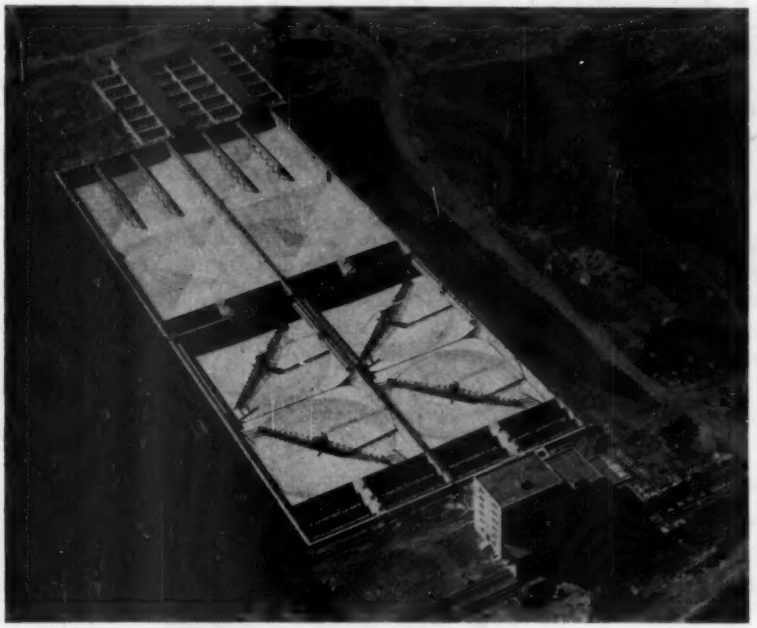
Fire Fighting Comes First

TO FORESTALL THE DISASTER of insufficient water for fire fighting because of excessive lawn sprinkling, an orderly method of rationing water for sprinkling has been established in Norway, Mich., according to City Manager Calvin Lakin.

Norway's 3,500 citizens have plenty of water at their disposal. A 500-acre, spring-fed lake, two rivers within 2 miles of the city, a high water table in the city itself, all assure the city of adequate water supply. However, the distribution system is simply not able to bring it to the people fast enough in the growing season.

To overcome this condition, the city has adopted an ordinance permitting lawn sprinkling at homes with even house numbers on Mondays, Wednesdays, and Fridays only; and at the odd-numbered homes on Tuesdays, Thursdays, and Saturdays only. No sprinkling at all is permitted on Sunday. Furthermore, at any time that the fire siren is sounded, water sprinklers must be turned off for one hour, to give the full force of the system to the fire fighters. Anyone who does not adhere to this regulation will have his water disconnected without notice.

With this system in force, Mr. Lakin reports that over-all pressures have remained fairly constant at 35 to 55 pounds per square inch. Winter pressures range from 50 to 60 pounds at the same points.

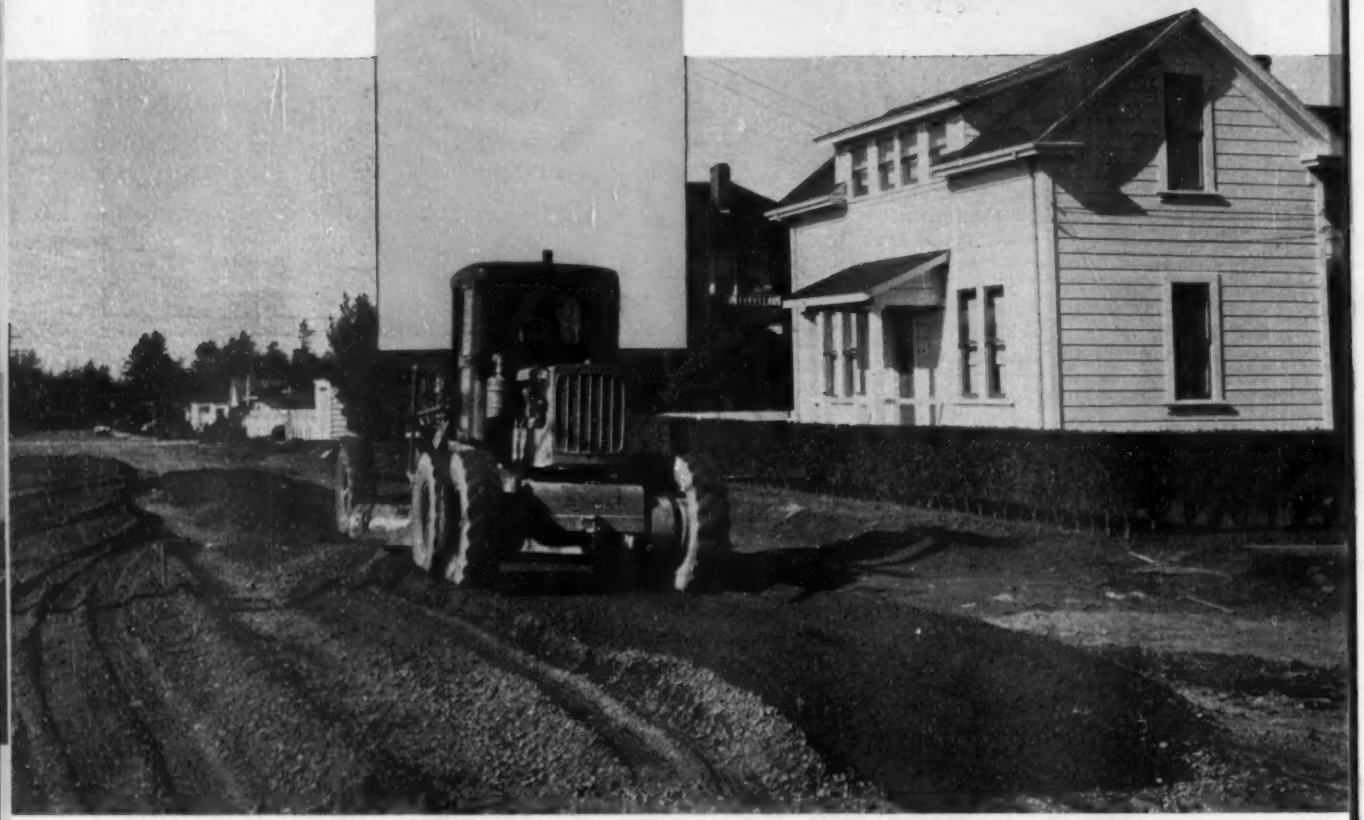


100 Million Gallons At a Clip

"DALLAS will be a great city if they ever get it built," has been the observation of many who have watched this Texas metropolis grow. The water works at Dallas is just as great and challenging in every step of its growth. The new 100-mgd Bachman filter plant, an aerial view of which is shown in the photo at the left, illustrates this point.

The plant uses eight Dorrco primary flash mixers; two Dorrco primary flocculators; four Squarex clarifiers; two secondary flash mixers and flocculators. The plant was designed by Myers and Noyes of Dallas.

Why operators cast a solid vote for CAT* Motor Graders



This 75-HP Cat Diesel No. 112 Motor Grader is spreading crusher run gravel before resurfacing, in Eureka, California.

THE city of Eureka, California, uses two Caterpillar Motor Graders—a No. 12 and a No. 112—for street maintenance and construction. T. Oberdorf, in charge of vehicle maintenance, says:

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A Self-Supporting Recreation Program

By ROY A. CLIFFORD, *Director*
Joint Recreational Board
Cleveland Heights, Ohio

WITH A STAFF of 260 trained personnel serving 75,000 citizens, the Joint Recreation Board of Cleveland Heights probably employs the largest number of recreation workers per capita of any such program in the country. This Board represents the city (population 60,000) and the city School District, which includes University Heights and part of South Euclid.

A policy of supporting a year-round program from the fees paid by the participants ($120,000 annually), and of making full use of school buildings has made it possible for this suburban community to provide to both adults and children an outstanding selection of recreational, cultural, and creative activities under expert teachers. Success of the program has shown that people will pay a reasonable fee in order to assure themselves and their children really good teachers and small classes.

In the summer day camps, the ratio of teachers to children has been 1 to 13. From a school population of 12,000, the total enrollment in the paid program is expected to reach 4,000 this summer, with a greatly increased staff. Close to half of the instructors are public-school teachers, and the remainder are college students majoring in education, with a few qualified high-school students assisting.

Day camps for younger children are held at all 12 elementary schools, five full days a week. A fee of $60 for 8 weeks includes swimming passes, bus fare, milk, and tee shirts imprinted with the name of the school camp.

A separate playschool program for the 5-to-7-year-olds is also available in the schools, 5 half-days a week at $15 for 8 weeks.

This summer the former music-arts program for older children through Junior High age will be expanded to include arts and crafts, theatre and dancing, at the High School and a Junior High. Schedule and fees will be the same as those of the other day camps.

The school-year program offers children from 7 to 12 years of age, classes in dramatics, ballet and tap, and social dancing one day a week for thirteen weeks each semester.

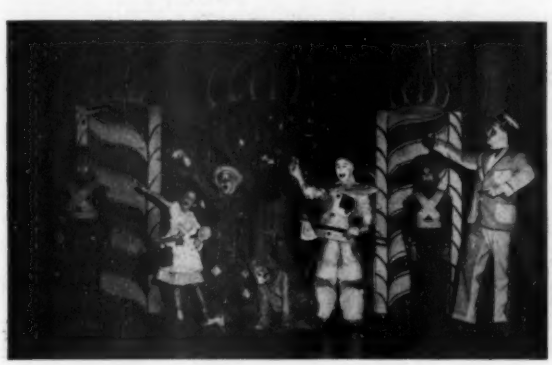
A free year-round program, supported from tax funds, gives all children in Cleveland Heights an opportunity to enjoy gym, basketball, swimming instruction, and playground activities, under expert supervision.

As for adults, the school-year program includes ballroom dancing, golf, bowling, bridge, badminton, basketball, swimming, gym, rifle range, dog obedience training, enamel on metal, woodworking, and oil painting.

Fees range from $4 for the larger recreational groups up to $12 for the skilled crafts classes, for 10-week periods. In summer, the men have twilight softball, baseball, and a rifle club, and there is swimming for both men and women. A total of 3,500 adults are served the year round.

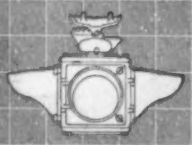
Cleveland Heights also has the distinction of owning and operating, through the City Parks Department, the nationally known Cain Park Theatre, where four semiprofessional musical shows are presented for two-week runs each in the natural setting of an amphitheatre seating 3,000.

An off-shoot of this theatre is the Cain Park Creative Playshop, which offers outdoor children's classes in the creative arts every week-day for six weeks and presents four full-length plays in its own theatre.



Children interested in arts and crafts receive excellent instruction from a qualified teacher in one of the many day camps (above). A production of "The Wizard of Oz" (left) is presented by the Children's Theatre in Cleveland Heights.

AUTOFLOW



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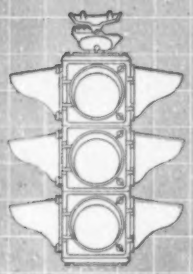

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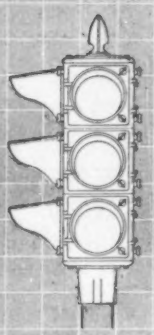

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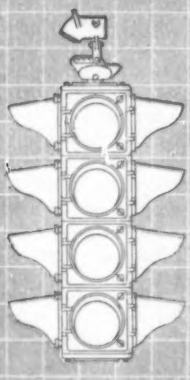

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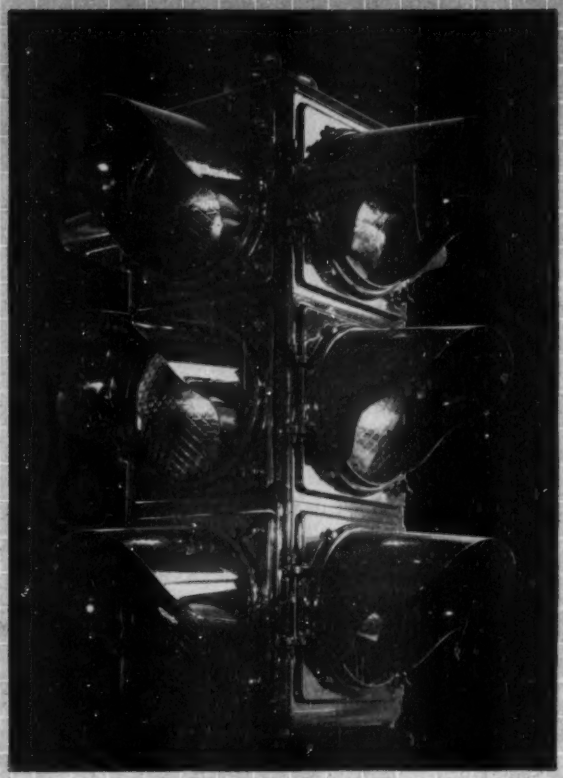

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Water & Sewerage Notes

Georgia Cities

Little City's Sanitary Facilities

DOUGLAS, in south central Georgia, has hoped for many years to be able to provide sewer service and sewage treatment for all of its 800 citizens. It has now realized its ambition with the construction of its complete sewage-treatment plant and sewer extensions that, to date, serve 95% of its population. The project, capable of being expanded as the municipality grows, was financed by revenue anticipation certificates. Glenn Tanner serves as city manager.

High-ground Plant

IN GAINESVILLE, a city of 15,000 in the foothills of the Blue Ridge Mountains, the municipal water plant and sewage-disposal facilities will be flooded by Lake Lanier when Buford Dam on the Chattahoochee River is finished. A new 4-mgd (million gallons per day), water-purification plant on high ground will be completed this year. Interceptor sewers in hilly terrain, pump stations, and a treatment plant must be built before the lake is filled. Bert W. Fulford is city manager.

Sewerage and Industry For 470

CLEVELAND, a little town of 470 in the Blue Ridge Mountains, wanted to spark its growth and attempted to accomplish this by attracting an industrial plant to its environs. A public sewer system was needed, also.

Success has been achieved by the establishment of an industrial plant that employs 150 people, and the construction of a municipal sewer system and sewage-treatment plant. The industrial site selected was too low to permit gravity flow to the sewer system, but this was solved by the installation of a sewage-pumping station to lift the sewage 40 feet and a 1,300-foot line to tie it into the sewer system. Jack Howard serves as water superintendent.

Metropolitan Area Development

DECATUR, a city of 13,000 in DeKalb County, near Atlanta, found its water supply inadequate. DeKalb's County Commissioner conceived the idea of building a county-wide system.

This system now has been built. It takes water from the Chattahoochee River, treating it in a modern filtration plant. The system serves 140,000 people or 70% of the county population. The DeKalb County facilities now under construction will serve the very same area. A county-wide fire department is also included. W. H. Weaver serves as general manager of the county water system.

Water and Sewage Works Expansion

AT GRIFFIN, a city of 15,000 in central Georgia, a water- and sewage-works expansion program was recently completed for $2,212,000.

The water-works project provides 50% additional raw-water pumping facilities, and distribution-system improvements which include new pumps, feeder mains, and a 1,000,000-gallon elevated tank. New sewage-works construction includes 14,000 feet of new sewer lines and the enlargement of two trickling filter-type treatment plants to capacities of 1.35 and 1.5 mgd. C. L. Smith, Jr., is water superintendent, and Lewis Simonton, superintendent of sewerage.

Textile Town Expands Services

LA GRANGE, a city of 25,000 in western Georgia, is a community predominantly employed by the textile industry. Sanitary services were reaching only 30% of the residents.

To correct this situation, a modern filtration plant, a substantially city-wide sewer system and complete sewage-treatment facilities have been completed at a cost of nearly $4,000,000. The improvement was financed by issuing $250,000 in general obligation bonds and the balance in revenue anticipation certificates. H. M. Crane is city manager.

Wholesale Water Supplies

COBB COUNTY, north of the Atlanta metropolitan area, has experienced a population growth from 38,000 to 75,000 persons due to aircraft and other industrial expansion. Water supplies, mostly from wells in towns of the county, could not serve this load.

To solve the shortage, the Cobb County-Marietta Water Authority, which furnishes water wholesale to municipal and county distribution systems, was created. The Authority has completed construction of a new filtration plant with river intake, and an inter-city distribution system costing $3,500,000.

UNPAVED STREETS—Roads treated with SOLVAY Calcium Chloride are compact, dust-free, smooth-riding surfaces. Calcium Chloride treated roads end complaints from motorists and local residents and reduce road maintenance costs. Calcium Chloride ends dust on gravel, limestone, cinder, crushed stone and similar unpaved surfaces.

PARKING AREAS—Parking lots that are clean and dustless keep patrons happy . . . attract new customers . . . reduce complaints from residents in neighborhood and promote good public relations with taxpayers.

SCHOOLS AND PLAYGROUNDS—Play areas are kept clean, more healthful and free of germ-bearing dust. Odorless, colorless SOLVAY Calcium Chloride will not stain clothes and equipment.

Keep Unpaved Surfaces CLEAN, SMOOTH and DUSTLESS

with Low-Cost, Clean, Odorless

SOLVAY Calcium Chloride

SOLVAY Calcium Chloride is the inexpensive, efficient way to eliminate dust. This clean, odorless, economical material keeps all unpaved surfaces and adjoining areas healthful and free of germ-bearing dust.

SOLVAY Calcium Chloride is easy to use—requires no special knowledge. It can be applied quickly by regular maintenance personnel—no experience or expensive equipment is necessary.

Send for FREE BOOK

This highly informative book "END DUST" gives complete details on methods of application, quantities required, etc. It contains photos, illustrations, charts, and easy-to-follow, step-by-step instructions on how to end your dust problems.

PARKS—Dust-free walks, drives and bridle paths make parks more attractive and enjoyable to picnic groups and strollers by preserving the beauty of shrubbery, lawns and buildings. Calcium Chloride saves painting and reduces maintenance costs. Will not track or discolor surfaces upon which it is applied.

BASEBALL DIAMONDS—SOLVAY Calcium Chloride ends unsightly dust, making the game more accurate. A dustless diamond reduces sun glare and adds to enjoyment and comfort of the spectators.

TENNIS COURTS—Many of the nation's leading tournaments are held on tennis courts treated with SOLVAY Calcium Chloride. It gives the courts a compact surface . . . makes the game more accurate . . . reduces sun glare . . . makes it easier for spectators to watch and follow fast action shots.

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Please send me with no obligation your FREE BOOK —"END DUST with SOLVAY Calcium Chloride".

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Sewerage and Sewage Treatment

No More Greenhouse Glass Breakage

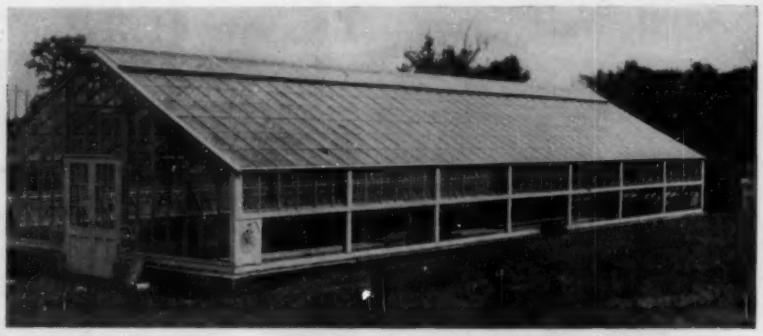
THERE WILL BE no more broken glass in the greenhouse covering the sludge beds at Brooklawn, a borough of 2,300 in southern New Jersey. The reason is simple: no more glass. Borough officials have replaced it with panels of transparent acrylic plastic.

Breakage has been a problem in this structure for years. Small boys in the area found it a challenging target. In the past, about 200 panes would be broken annually, rolling up a yearly glazing cost of nearly $400. This damage was a drain on the borough's budget.

In April 1952, the borough decided to switch to the plastic, shatter-resistant Plexiglas panes. In the nearly two years of its use, Borough Engineer C. D. Scott, has found only two cracked panels. The plastic is a product of Rohm & Haas Company of Philadelphia, Pa.

The greenhouse measures 60 feet long and 24 feet wide. The plastic panels are 24 inches long, 16 inches wide, and ⅛ inch thick. They were installed with the use of a permanently soft glazing compound placed along the vertical supporting ribs of the greenhouse and 1-inch overlaps from top to bottom.

In addition to cost savings, the freedom from breakage resulting from the replacement program has brought several concurrent advantages. With no broken panes, heat loss in the greenhouse is minimized; the sludge dries more quickly; and the sludge-drying facilities can be used more efficiently.



Boys with rocks are no longer a threat to an expanse of panes since Brooklawn has replaced greenhouse glass with plastic and cut broken panes from 200 to 2.

Best Plants in Texas

TWELVE CITIES in the Lone Star State hit the Honor Roll released by the recent Texas Water and Sewage Works Association Short School, held at Texas A & M College, College Station. The banner sanitation leaders are:

Kerrville—A city of 7,700 in south central Texas, for having the highest percentage of its population being served by connections to the public water-supply system.

Port Arthur—A city of 57,530 population in the southeastern part of the state, for having the best water-plant laboratory.

Bellaire—A municipality of 10,173, just west of Port Arthur, for having the highest percentage of its population being served by connections to the sanitary-sewer system.

Brownsville—A municipality of 36,066 people on the Mexican border, for making the most advantageous use of its sewage-plant effluent.

Burnet—A community of 2,394 persons in central Texas, for making the most advantageous use of its sewage sludge.

Weslaco—A city of 7,514, just west of Brownsville, for maintaining the best sewage-plant laboratory.

Robert Lee—A community of 1,069 in the central part of the state, for a water plant with the most attractive appearance.

Stamford—A city of 5,819, in the northern part of the state, for completing the most extensive improvement to its water plant.

Temple—A city of 25,467, in central Texas, for the most attractive sewage-treatment plant.

New Boston—A community of 2,688, in the northeast, for having the sewage-treatment plant that produced the best quality of effluent during 1953.

Canyon—A city of 4,364 in the northern part of the state, for completing the greatest improvements to its sewage-treatment plant.

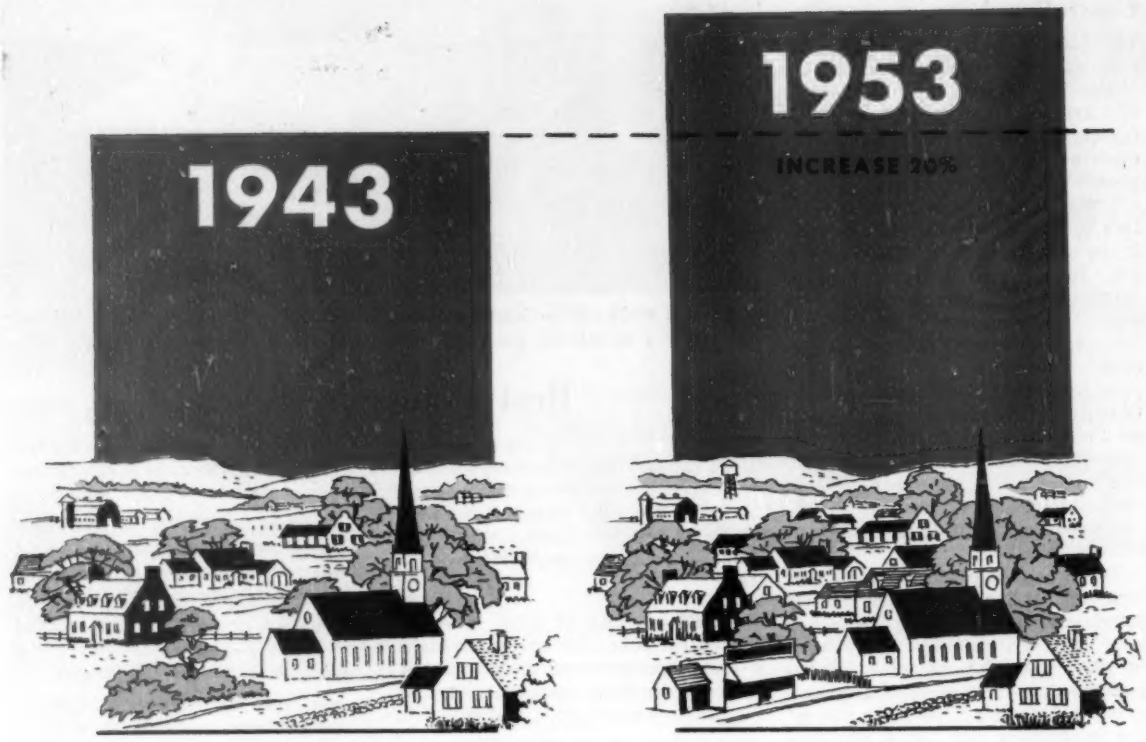
Fort Stockton—A community of 4,444, in the west, for having the greatest ratio of sewer connections completed to the number of those in existence during the year.

The Short School was held in cooperation with the Texas State Department of Health, the Southwest Section of the American Water Works Association, the State Board for Vocational Education, and Texas A & M College. Registration exceeded 700.

All in One Spot

Although you can't see it all, the complete plant is there. The digestion compartment is hidden below the primary clarifier in this compact Dorr Clarigester used by Center, Colo. The plant receives sewage from a population of 2,024. At present, it is the only sewage treatment plant in the San Luis Valley section of Colorado.

This is YOUR Community



During the past 10 to 15 years, population has increased and replacement values of existing properties have skyrocketed. You know the story, yet how much time has been spent to see that fire defenses have kept pace with community growth in other directions?

Check these points for a quick analysis of the adequacy of your 1953 fire defense system —

✔ Your population has increased __% in the past 10 years.

✔ Your number of buildings has increased __%.

✔ Values of risk have increased __%.

✔ Your fire alarm box system increased __%.

If your answers don't seem to "fit together," it's time to survey your community, set up plans for a realistic 1953–1963 fire alarm box system. Gamewell can make such a survey for you, and it will cost you nothing unless and until you buy materials or services from us.

Write us about a survey of your needs for the present and the future.

THE GAMEWELL COMPANY
NEWTON UPPER FALLS 64, MASSACHUSETTS
In Canada: Northern Electric Co., Ltd., Belleville, Ont.

Public Safety

If It's a Rescue Tool, Rochester's CD Trucks Have It

Battalion Chief McMillan holds one of 300 tools carried by Rochester's rescue truck.

EACH OF ROCHESTER'S two new rescue trucks has an ingenious array of compartments, shelves, drawers, and removable panels that take advantage of every cubic inch of space.

Trucks and Equipment

The truck itself is a standard Reo chassis powered by a 331 cubic inch gasoline engine of 20,000 pounds gross weight, and can achieve road speeds up to 55 miles per hour.

Each truck is equipped with one 15,000-pound capacity front-mounted power winch. In addition to over 300 different tools and rescue equipment, inside space is provided for two stretcher casualties and a rescue squad of eight men.

CLIFFORD J. MCMILLAN
Battalion Chief
Coordinator of Civil Defense Units
Office of Civil Defense
Rochester 14, *N. Y.*

A Cooperative Communications System

TO FACILITATE police and fire communication, several communities in Lake County, Ill., have joined a county-wide radio network, originated and operated by a World War I Navy radioman, Harry Quandt.

Police stations in a dozen towns of the area, as well as many volunteer fire departments, are linked to a master transmitter and receiver located near Libertyville, Ill.

Coded Controls

Stations use selected coded controls to eliminate all towns not concerned with specific messages and to include those that are. The equipment, housed in a modern, one-story building, was designed and engineered by Harry Quandt. He and two companions financed the building of the system, and a few years later the county appropriated money for its extension.

In the event of a breakdown in the communications system, a Kohler 10-kw gas-powered electric plant goes into action automatically, providing adequate standby power for fire and police activities. This plant is made by the Kohler Company, of Kohler, Wis.

Towns participating in the system pay a reasonable service and maintenance charge for efficient, speedy service. When Mr. Quandt is away on an emergency call, his wife takes over. In 1953 the two of them handled more than 75,000 radio calls that included police, fire, rescue and ambulance services in the 540 square miles of Lake County.

The many public service agencies, which are members of this cooperative communications system, have found the mobile unit very helpful.

The Motorola radio system at Libertyville, Ill., is run by Harry Quandt, shown replacing repaired equipment in a sheriff's car.

Detroit tests prove interesting facts about refuse collection units

Like a lot of other cities — Detroit, Mich., suddenly discovered that it had "*outgrown*" its sanitary system. Old methods and machines simply were *no longer adequate* to handle the vast new responsibilities imposed on them. So wise public officials acted promptly to provide modern rubbish disposal for Detroit's *500,000 homes and commercial establishments*. They studied the sanitation problem from every angle . . . made detailed "route tests" with every type of collection equipment. Result: the City of Detroit *ultimately purchased 453 Gar Wood Load-Packers* . . . a pretty good indication that Load-Packers are the best buy for your community, too. Contact your Gar Wood distributor today for complete details and a *free Load-Packer demonstration*.

Here's what

CARL D. WARNER

Commissioner

of Public Works

REPORTED . . .

Conclusions excerpted from a detailed article appearing in THE AMERICAN CITY Mar. 1954

"In order that we standardize on the best possible equipment for our needs, the department's Motor Transport Division and the Division of Sanitation were asked, jointly, to conduct exhaustive tests of the various makes and types of equipment.

"To approach this task from a scientific angle, we decided to *analyze the composition of normal loads.* Several thousand truck-loads of rubbish were separated and examined. From this study, we learned that *82% of all rubbish collected was burnable and could be sent to the incinerators.* Furthermore, since burnable materials are normally more bulky than nonburnable, our problem was one of *bulk rather than weight* . . .

"This automatically narrowed our choice of new collection equipment. *Trucks had to be equipped with fully enclosed, compaction-type bodies, able to reduce these compressible wastes into a solid, dense mass and thereby increase the load capacity.* Open trucks, certainly, were obsolete.

"Too, normal city expansion was moving our landfill operations to more remote locations. Thus, the greatly increased capacity of packing type bodies would substantially reduce number of trips to the dump.

"Experiments with various body designs further narrowed the field. Some types were found to be impractical in the narrow downtown alleys. Others, bulky in design, presented problems of maneuverability; some with complicated operating mechanisms presented hazards to safety.

"These extensive tests conducted by the Sanitation and Motor Divisions in conjunction with the manufacturers of packing-type units resulted in our decision to purchase 16-yard *Gar Wood* Load-Packers. *The powerful compaction, neat and orderly design, and low loading height, as well as simplicity and speed of operation, proved ideal for our work.* Today, we have 423 of these units in operation and 30 additional units scheduled for delivery."

453 Gar Wood Load-Packers now provide sanitary, low-cost rubbish disposal weekly over Detroit's 4200 miles of streets and alleys, to 4 incinerators and 7 sanitary landfills.

LP-1

GAR WOOD INDUSTRIES, INC.

Wayne Division — Wayne, Michigan
Richmond Division — Richmond, Cal.

WORLD'S LARGEST MANUFACTURER OF DUMP BODIES AND HOISTS FOR TRUCKS AND TRAILERS.

Refuse Collection & Disposal

Municipal Refuse-Sanitation Practices in Texas

WACO, a central Texas city of 90,000, was struck by a tornado on the afternoon of May 11, 1953. Thousands of truckloads of debris, resulting from the destructive storm, required disposal. But the city's rat- and fly-infested dump ground seemed to cry out from its clouds of smoke and odors against continued use.

A LANDFILL IS BUILT ON DISASTER DEBRIS

Funds for refuse disposal were included in the disaster and financial aid. The municipal officials decided on the use of a sanitary fill located to the east of the city and purchased an Allis-Chalmers HD-9 tractor with a Tracto-Shovel front-end loader to operate a trench-type fill.

Later, to reduce hauling distance, the city established a second fill, of the area type, on the west side of the city. This fill was activated as a result of a request from university stadium officials that the city use some 30 acres of their sloping land and level the terrain by operating an area sanitary landfill. The leveled ground is to be used as a parking area for cars during Southwest Conference football games.

However, this is an area of well-kept homes, and objections were voiced at first to the location of the fill. But by operating the fill carefully, the refuse was completely controlled and officials and citizens of Waco have wholeheartedly accepted the sanitary fill as a means of reclaiming marginal land. The equipment used on this fill is an International TD crawler tractor equipped with a Drott Bullclam. Refuse is collected in 14 trucks that all carry Pak-Mor bodies.

IN HUNTSVILLE, a historic city of 10,000 in southeastern Texas, municipal officials have turned to the service-charge system of financing their refuse-sanitation program.

A charge of $1 per month per residence pays for three refuse collections per week, and $2 to $5 per month for daily business collections. Each service unit is required to possess and properly use a regulation garbage can for sanitary storage of all refuse. The program is administered by City Manager Kate Barr Ross.

FEE SYSTEM FINANCES COMPLETE PROGRAM

The fee system not only pays for refuse collection, but also provides funds for disposal of all refuse by the sanitary landfill method. Even after labor, truck, tractor, depreciation, and other expenses have been itemized, the utilities manager has been able to show a profit. This program has been in force for approximately three years.

For collection, the city uses two trucks, one equipped with a Pak-Mor covered, compactor-type body; the other with a canvas-covered open body. To conduct the sanitary landfill, the city employs an International TD-14 crawler tractor that has been equipped with a Drott Bullclam.

IN LAKE JACKSON, a municipality of 6,000 near the Gulf of Mexico, the soil is black clay, the terrain is flat, and the water table is high. Nevertheless, city officials have conquered these obstacles and are operating a creditable refuse-collection and disposal program on an initial investment of only $9,000 for equipment. The program is directed by City Manager John Elder who initiated the plan.

LOW-COST SANITARY OPERATION

One driver and his two helpers daily collect all refuse from business establishments and twice weekly from the residential districts. Their equipment consists of one truck with a 15-yard Pak-Mor collection body. The refuse goes into a trench-type sanitary fill, excavated by a rented dragline. A small, 21-hp Oliver OC-3 crawler-type tractor functions on a half-day schedule to compact and cover all refuse.

The fill is being built on a very small, sloping, working-face area, thus conserving earth cover material and the tractor operator's time. A trench lasts as long as four months.

THE Texas State Department of Health, believing that modern refuse sanitation—storage, collection, and disposal—should be applicable to small towns as well as to large cities, last year sponsored sanitary landfill operational demonstrations in 12 small towns throughout Texas in an effort to encourage municipal interest.

REFUSE SANITATION APPLICABLE FOR ALL

All the light-equipment sanitary landfill demonstrations were held in Yoakum, Floydada, Anson, Mount Pleasant, Athens, Arlington, Hico, Kerrville, Weslaco, Brenham, Livingston, and Henderson, whose populations range from 1,000 to 7,500. The equipment used in these demonstrations were the American Terratrac GT-30, the John Deere MC, and the Oliver OC-3.

Following these demonstrations, cost and operational studies were made on refuse storage and collections. The department now has for distribution sample cost calculations on refuse sanitation programs for towns with populations as low as 800, which is equivalent to the per capita costs of operations in larger cities.

Without minimizing the major objective of modern sanitation procedure, the maximum financial service charge for small and large municipalities is calculated at $1 per month for residential-unit service, and an average of $3 per month for business establishments.

Communities of less than 800 people can maintain the same high-standard program at a slightly increased per capita cost. These cost calculations have been proved applicable and workable by various municipalities throughout the state.

EDITORIAL NOTE: These notes are from the files of the Texas State Department of Health and were compiled by Dr. George W. Cox, state health officer, and V. M. Ehlers, director of sanitary engineering.

Check 'Em!

ONLY ADAMS Motor Graders have all these time and money-saving advantages

8 Forward Speeds

✓ Provide the "right" speed for every operation and a higher travel speed. Save time—reduce costs.

4 Reverse Speeds

✓ Up to 13 mph. . . . Save valuable production time backing on short stretches, between forms, etc.

3 "Creeper" Speeds

✓ ¼ to 1¾ mph. (optional). Use full engine power while gearing grader to slow-speed operation.

Rubber-Mounted Engine

✓ Floating power—no engine vibration transmitted to grader. Increases operator efficiency.

Dual Braking System

✓ Service brake applies hydraulic braking action to transmission as well as wheels. Quicker, safer stops.

Foot Accelerator

✓ Permits operator to drive grader as naturally as truck or automobile. Safer handling in traffic.

New Heavy-Duty Constant-Mesh Transmission

✓ Easy, positive gear shifts at all speeds . . . Heavy construction with helical gears on roller bearings for quietness and long life. The finest ever put into a motor grader.

ASK YOUR ADAMS DEALER FOR AN ON-THE-JOB DEMONSTRATION

Make your next motor grader an

ADAMS

Street Construction and Maintenance

Bridge Repair Is Easy with Precast Concrete

TRAFFIC was scarcely disturbed when a badly deteriorated bridge was repaired near Chittenango, N. Y. The repairs went off smoothly, scheduled for one side of the bridge at a time, permitting traffic to use the arterial highway without interruption.

The bridge repair represented the work of District No. 2 of the State Department of Public Works. The designers specified that the abutments be extended and the deck widened with reinforced concrete slabs, manufactured by the Syracuse plant of the Universal Concrete Pipe Company, Columbus, Ohio.

The design permitted the complete salvaging of the old abutments. These received the precast slabs which were supported by a ¼-inch bearing pad. The over-all width of the rebuilt bridge, including curbs and one 2-foot sidewalk, is 42 feet. Length, including bearing, is just short of 37 feet. The bridge lies on an angle of 32° 16′ with the center line of the street.

A run-down, old, narrow bridge becomes fresh and new in a hurry at a low cost with the help of a precast concrete deck.

Borrowing Pays for Leavenworth, Kans.

BORROWING from Peter to pay Paul has always been considered an unprofitable maneuver. But, in Leavenworth, Kans., when Superintendent of Streets Bernard J. Cassella borrows earth from Poplar Street to make a fill on Thornton, the entire city is profited by two new roadways.

To make the cut, the city uses a Caterpillar HD-4 tractor with a Trackson loader that both excavates and loads the waiting trucks. To make the fill, the city puts a Caterpillar No. 12 grader to work, bringing the earth to finished elevation.

These and other streets in the outlying areas have been receiving workmanlike attention from Leavenworth's street crews. During the past five years, this city of 21,000 has opened 3 miles of new streets, has prepared 12 miles of streets for oiling in a single season, and has maintained the balance in good condition.

Leavenworth makes a cut here to build a new street.

It then uses the same earth as fill in order to build another.

Extra STRENGTH BEAUTY

WITH **HAPCO** *Aluminum Alloy*

BRACKETS AND STANDARDS

An Indiana city found a happy solution to its street lighting problems in Hapco Aluminum Alloy Standards and Brackets. Dead end and corner locations are provided with poles of larger diameter and greater weight, with the same design features as the other standards.

Extra Strength . . . The Hapco method of production offers a desirable versatility in providing the poles required for heavy duty or special services while still maintaining the harmonious beauty of the system.

Extra Beauty . . . All Hapco Standards are Venetian column type acclaimed by architects for eye appeal and strength. Every pole is one piece, free from longitudinal seams or transverse joints, and is of uniform wall thickness throughout. Standards and brackets are mat finished for permanent beauty without maintenance or painting cost.

This 10-inch diameter pole at a corner location harmonizes with the regular smaller diameter standards, yet has the extra weight and strength required.

The lighting system in the business section is beautiful by day as well as by night, thanks to Hapco graceful standards and brackets in permanent aluminum alloy.

HUBBARD ALUMINUM PRODUCTS COMPANY

MANUFACTURERS OF HAPCO QUALITY ALUMINUM PRODUCTS

A Division of HUBBARD and COMPANY

6301 Butler Street • Pittsburgh 1, Pa.

Get What You Want—No Charge!

To obtain any of the following catalogs, write directly to the manufacturers. If you prefer, you may circle the identifying numbers on this coupon and mail to THE AMERICAN CITY, *470 Fourth Avenue, New York 16, New York, or use the colored Post Card at page 226.* 6/54

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Name ..... Position .....

Address .....

No More Leaking Foundations or Walls

1 Specialists in ground-water, geological and mining studies, air-placement of concrete, and highway engineering, the MANU-MINE RESEARCH & DEVELOPMENT CO. offers effective aid in solving your city's ground-water problems. Information is furnished on stopping the flow of water through walls and foundations, and stabilizing the soils around foundations and footings. For full details, address the company at P. O. BOX 167, READING, PA.

Water Meters

2 *Bulletin 800* describes Badger's compound type water meter, a combination of the company's disc meter and turbine meter, designed for accurate, dependable performance in plants and buildings. Badger's disc water meter, the heavy-duty model SC-SOT, for large capacity and low-pressure absorption, is discussed in *Bulletin 350*. Write BADGER METER MFG. CO., MILWAUKEE 45, WIS.

Trash Cans Which Wear Longer

3 The company that originated the long-wearing corrugated can refuse container, offers you a variety of cans and pails for trash and garbage. Constructed of heavy gauge steel, each unit features "pinch-proof" handles, and a sturdy lid. Witt cans and pails remain in good condition after many years of hard usage. Descriptive literature is available from THE WITT CORNICE CO., 2139 WINCHELL AVE., CINCINNATI 14, OHIO.

A Money-Saving Filter Plant

4 A filter plant designed by this company doesn't require an expensive filter-plant building, settling basins, or costly filter bed and backwashing arrangements. All it does need is a large-diameter Caisson well, which is sunk into a natural formation near a river or lake. Water thus obtained is filtered free from impurities, taste and odor, and is ready for domestic use. Write CAISSON WELLS, INC., 33 W. 42nd ST., NEW YORK 36, N. Y.

Prevents Rust

5 Cut painting cost on all city installations by applying the heavy-duty rust-resistant paints made by THE TROPICAL PAINT & OIL CO., 1112-1284 W. 70th ST., CLEVELAND 2, OHIO. For iron and steel equipment in sewage and filtration plants, use the new ABC Primer. Rhinamel is ideal for hydrants, signs, and standards, and Toconamel does the job on graders, tractors, and shovels.

Clearer Swimming Pools with Diatomite Filters

6 The diatomite filters made by the R. P. ADAMS CO., INC., 232 E. PARK DR., BUFFALO 17, N. Y., offer the operator of a municipal swimming pool more filtering surface in less space. Similar in basic design to the Adams Poro-Stone filter for industrial water filtration, the new SPF keeps pools clear and sparkling with minimum maintenance. Filter capacities are available for small and large swimming pools.

Spend Less for Sewage Lift Stations

7 Sewage lift stations can operate without a pump house when equipped with the Weil submersible sewage ejector, complete with a bladeless impeller that won't clog. Easy-to-install in pits from 3 to 30 feet deep, the ejector avoids piping connections; needs only a discharge line running from the pump casing flange to the nearest sewer. Details on the new sewage ejector, where and how to install it, are contained in *Bulletin SE 860B* from WEIL PUMP CO., 1518A N. FREMONT ST., CHICAGO, ILL.

Pipe Couplings

8 Efficient couplings not only seal pipelines "bottle-tight," they permit expansion and contraction, too, allowing for misalignment and complete flexibility. The Allsteel Couplings made by R. H. BAKER & CO. INC., 2070 E. SLAUSON AVE., HUNTINGTON PARK, CALIF, reduce pipe installation and maintenance costs to a minimum. Available in sizes ranging from 24 to 96 inches, they are fully described in a new Baker catalog.

Efficient Refuse Collection

9 An automatic refuse collection unit that does the work of 2 or 3 open trucks, and is economical to operate and maintain is offered by St. Paul Hydraulic Hoist. The Pax-All Refuse Collector features automatic cram-packing for larger pay loads, resulting in less man-hours and fewer trips to the dump. It is fully described in literature from ST. PAUL HYDRAULIC HOIST, CUSTOMER SERVICE DEPT., 36125 MAIN ST., WAYNE, MICH.

Mobile Street Signal Features Twin Flashers

10 Two lights flashing alternately left and right on this new street signal, permit safe crossing at school and other danger zones. The signal is quickly and easily wheeled from place to place. It is available with such messages as: "SCHOOL CROSSING. Stop When Occupied," or "STOP. For Pedestrians." A new circular describes and illustrates the new street signal. Write HAWKINS-HAWKINS CO., 1255 EASTSHORE HIGHWAY, BERKELEY, CALIF.

Dependable Siren Signals DANGER

11 You are assured of an effective warning signal system with the new Benjamin siren, fully described in a new *Signal Guide Book*. Powered by a small, high-torque, 10,000 rpm motor, the siren is immune to atmospheric conditions, wind direction, and industrial din. A sturdy housing prevents moisture from entering; increases the life of the siren and lowers maintenance cost. Write BENJAMIN ELECTRIC MFG. CO., DEPT. AC, DES PLAINES, ILL.

Efficient Chlorinator

12 Tightly sealed, corrosion resistant pipes and components, fully enclosed in a fiber-glass cabinet, make up this new chlorinator introduced by FISCHER & PORTER CO., 5330 FISCHER RD., HATBORO, PA. With the F & P chlorinator you can handle chlorine economically without worrying about excessive maintenance cost or wasted chlorine gas. Detailed literature will be furnished on request.

(Please turn to page 33 for more Bulletins)

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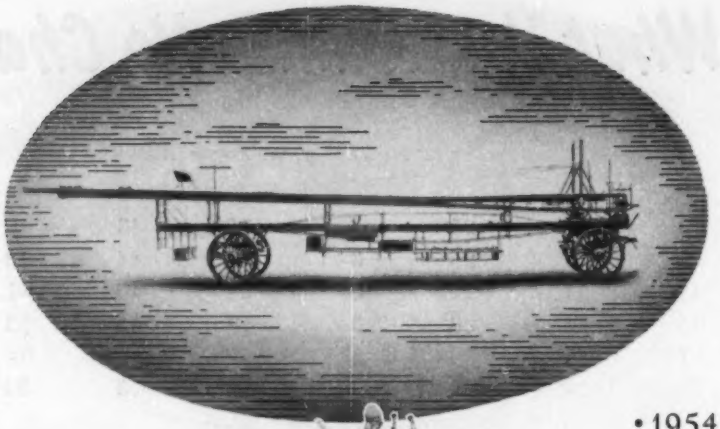

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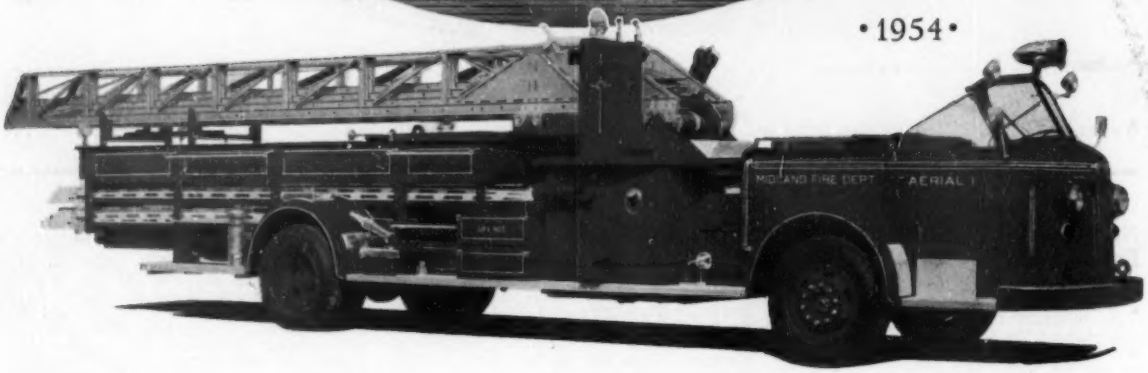


Continuous Improvement, then and now

Aerial ladder trucks have progressively improved in design during the past 75 years of fire department use. The first aerial ladders were of wood (Douglas Fir) and mounted on a horse drawn truck. The ladder was hand cranked to raise or lower. Progressive improvements were made through the years; spring operation to raise the ladder; motorized tractor to replace the horses; improved ladder construction and trussing for greater safety.

The all-steel aerial ladder was developed to meet the growing shortage of Douglas Fir suitable for building aerial ladders. The American-LaFrance all-steel aerial ladder increased the useful range of aerial ladder utility with important advantages to the fire service: (a) Water tower operation; (b) One man operation; (c) No tillerman; (d) Less room to house; (e) Greater ladder strength; (f) Shorter turns. These are a few advantages of the modern American-LaFrance 4-wheel aerial.

Write for detail literature

• THE WORLD'S FINEST FIRE ENGINES •

AMERICAN LAFRANCE

AMERICAN-LAFRANCE-FOAMITE CORPORATION
ELMIRA, NEW YORK, U S A.
LAFRANCE FIRE ENGINE AND FOAMITE LIMITED
TORONTO 9, ONTARIO, CANADA

Obtain this Literature Free of Charge!

Write directly to the manufacturers or use the coupon on page 31

New 2-Way Police Department Radio

13 These mobile or stationary receivers provide police departments with a low-cost, coordinated 2-way communications system. Crystal controlled or tunable for any VHF FM communication system, they are made by the MONITORADIO RADIO APPARATUS CORP., 55 N. JERSEY ST., INDIANAPOLIS, IND. Write for details.

Rotary Mower Cuts 7-Foot Swath

14 With adjustable cutting heights from 2- to 16 inches, the Yazoo rotary mower is quickly attached to any tractor, and operates at speeds up to 10 miles an hour. An ideal unit for efficient park maintenance, it cuts a 7-foot swath easily, has blade shafts equipped with Timken roller bearings, and features a protective cover for its sturdy steel frame. Write the YAZOO MFG. CO., 3607 LIVINGSTON RD., JACKSON, MISS.

Self-Service Parking Lots

15 An automatic parking system that operates around-the-clock without attendants, guarantees full monthly rental collections and protects revenue. The heart of this self-service system is an electronic device, actuated by a simple card-key, which controls entrance and exit gates. Only those entitled to parking privileges are admitted. The gates and control device are easy to install, and require virtually no upkeep. Write PARKING CORP. of AMERICA, 33 N. LaSALLE ST., CHICAGO 2, ILL.

Sets Pins Quickly in Structural Steel

16 A powder-actuated tool has been developed that will drive heavy shank fasteners into structural steel plates up to 1-inch thick, and into dense concrete. Reported the "first successful tool of its kind," the small Super-Power Jobmaster is a time-saving asset on many municipal construction jobs. It is designed for 1- and 2-hand operation, and sets pins and studs, ⅜-inch in thread or head diameter, at an average rate of one or more a minute. Write RAMSET FASTENERS, INC., 12117 BEREA RD., CLEVELAND 11, OHIO.

New and Rebuilt Brooms and Brushes

17 Rotary sweeper cores for a variety of standard-brand sweepers, Peckerwood steel wire dragbrooms, and fountain brushes for cleaning city-owned cars, trucks and buses, are made by the VAN BRUSH MFG. CO., 327 SOUTHWEST BLVD., KANSAS CITY 8, MO. Furthermore, the company will refill your worn gutter brooms with flat-steel wire, duplicate damaged wood slats on rotary sweeper cores, and furnish new hub parts. Write for literature.

Miniature Venturi Tube

18 When measuring fluids in quantities too low for the application of a normal size venturi or orifice, use the Type TF Venturi, available in cast iron, bronze, or stainless steel. This new tube is furnished with inlet sizes ranging from ½- to 2 inches, and is described and illustrated in a detailed 5-page brochure. For your copy, write SIMPLEX VALVE & METER CO., 6789 UPLAND ST., PHILADELPHIA 42, PA.

Street-Lighting Standards

19 Conforming to I.E.S. Street Lighting Codes, these tapered Weldforged lighting standards are designed to withstand the severest weather conditions, and are now in use in large cities, and small towns throughout the country. They are made by KERRIGAN IRON WORKS, INC., NASHVILLE, TENN. A free copy of the new *Street Lighting Catalog* will be sent on request.

Long-Wearing Fire Hose

20 Some 35,000 feet of safe, long-wearing Bi-lateral fire hose was recently purchased by the fire department of Columbus, Ohio, according to Fire Chief W. G. Strickfaden. Easy to load and handle, the hose was made by the BI-LATERAL FIRE HOSE CO., 20 N. WACKER DR., CHICAGO 6, ILL.

Sluice Gates

21 The component parts of a Chapman standard sluice gate are all interchangeable, speeding installation and reducing maintenance cost. A wide range of sizes and designs are available, constructed with any type of operating control. For your copy of *Catalog 25*, write THE CHAPMAN VALVE MFG. CO., INDIAN ORCHARD, MASS.

Special Pipe Accessories

22 No matter how carefully you lay cast-iron pipe, you still should test it. For this you can use a test plug needing only a ratchet to install or remove, requiring no lead, caulking or jute. Sometimes the best-laid mains break or need reinforcement at railroad or highway truck routes. Here you can use a variety of sturdy split sleeves. At times, the pipe needs cutting for service or valve insertion. For this, you can put to work the handy Strickler ratchet action pipe cutter. All these are described in literature that can be supplied by JAMES B. CLOW & SONS, 201-299 N. TALMAN AVE., CHICAGO 80, ILL.

Incinerators for Schools and Hospitals

23 Cities in doubt about the type and size of incinerator to use at schools and hospitals, may write JOSEPH GODER, INC., 5121 N. RAVENSWOOD AVE., CHICAGO 40, ILL., for *The Incinerator Bluebook*, containing an Incinerator Selector Guide for typical installations. The Bluebook also details methods of feeding or charging refuse, developments in incinerator design, and a complete description of Goder incinerators, destructors, and medical-waste crematories.

A Sewage Pump That Won't Clog

24 Where large capacities of sewage must be handled at high speeds, the non-clog, mixed-flow sewage pump, manufactured by MORRIS MACHINE WORKS, BALDWINSVILLE, N. Y., will meet your needs. In the mixed-flow pump there are no guide vanes in the suction or stationary diffusion vanes on the upstream side of the impeller, to catch long, fibrous material. Internal bearings never come in contact with the sewage. Horizontal and vertical type Morris mixed flow pumps have capacities up to 150,000 gpm. They are described in *Bulletin 178*.

A Low-Cost Way to Clean Sewer Pipe

25 Clean sewer pipe from 2- to 48 inches economically, with a rodding-cleaning machine from RODDING-CLEANING MACHINES, INC., 7827 MELROSE AVE., LOS ANGELES 46, CALIF. These machines will clean water mains too, and may be adapted for pulling power lines through conduits. Additional data on request.

Air Compressors

26 Powered by a Chrysler industrial engine, the model 120-P compressor will operate two 80-pound paving breakers, two 80-pound sheeting drivers, a 50-pound rock drill, four backfill tampers, or two concrete vibrators at less cost than large, bulky compressors. The unit is designed without complicated parts, reducing maintenance cost. Write GORDON SMITH & CO., INC., 425 COLLEGE ST., BOWLING GREEN, KY.

Improved Brush Cutter

27 Cut brush up to 2 inches in diameter quickly with the Gyro-57, a new brush cutter that operates along pavement edges and in close corners. Two models, a pull type and a 3-point lift type, are equipped with rotating blades that make a complete 57-inch-wide cut every 2 inches of travel at 4 mph. Write SERVIS EQUIPMENT CO., 1000 SINGLETON BLVD., DALLAS, TEXAS.

Water-Works Valves and Fire Hydrants

28 Ten reasons why the double-disc gate valves made by this company have won the approval of water-works officials throughout the country, are discussed in Bulletin No. 901, from the RENSSELAER VALVE CO., TROY, N. Y. *Bulletin V-49*, from the same firm, discusses check valves, and *Form 903*, the Rensselaer Corey fire hydrant.

Sewer Cleaning Equipment

29 Complete sewer cleaning machines, sewer rods, sectional steel rods, and braces and guides are made by W. H. STEWART, INC., P. O. BOX 767, SYRACUSE, N. Y. Also buckets, root cutters, and drag tools. Write for literature.

Long-Wearing Aluminum Street Signs

30 Reported to "last for a lifetime," these aluminum reflectorized street signs are now in use in Tucson, Niagara Falls, St. Petersburg, and other major cities throughout the United States. They are made for 24-hour visibility and minimum maintenance by LAKE SHORE MARKERS, 654 W. 19th ST., ERIE, PA., manufacturers of all types of municipal signs and markers.

Better Street Lighting at Dangerous Intersections

31 Installed on mercury vapor luminaires, Holophane refractors utilize wasted light, providing nighttime traffic with daytime visibility. The refractors are especially valuable when installed at bridges, dangerous intersections, and on super highways. For *Street Lighting, A Guide to Good Practice*, write HOLOPHANE CO., INC., STREET LIGHTING DEPT., NEWARK, OHIO.

(Please turn to page 37 for more Bulletins)

QUESTION*

How much more material is there in a Three-Inch-Higher Windrow . . . 9% . . . 18% . . . 31% . . . ?

Cross section of an average, 21-inch high windrow . . . the area (width x height ÷ 2) is 614 sq in.

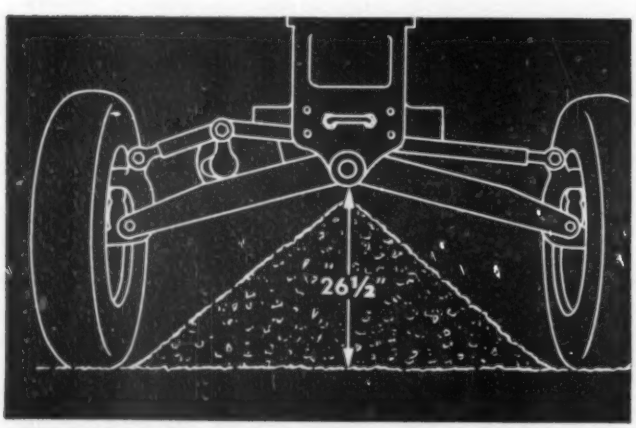
Now increase the height of the windrow by 3 in. The cross-section area now equals 804 sq in.

The difference . . 190 sq in, over 30 percent more area, which means over 30 *percent more yardage.*

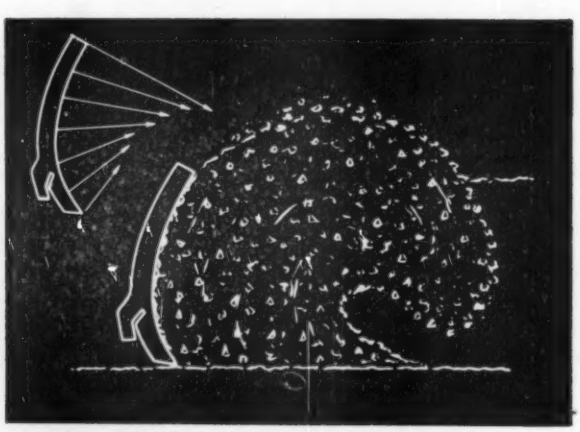
*Only a Combination of Advanced Design Features Lets a Motor Grader Handle Big Loads Fast

To take full advantage of even a *three-inch* difference in windrow height (as explained above) a heavy-duty motor grader needs new design and performance characteristics from front to rear . . . and from the top of the main frame to the bottom of the blade. No single feature can give you the increased work capacity that is so essential on road construction, maintenance and oil-mix jobs.

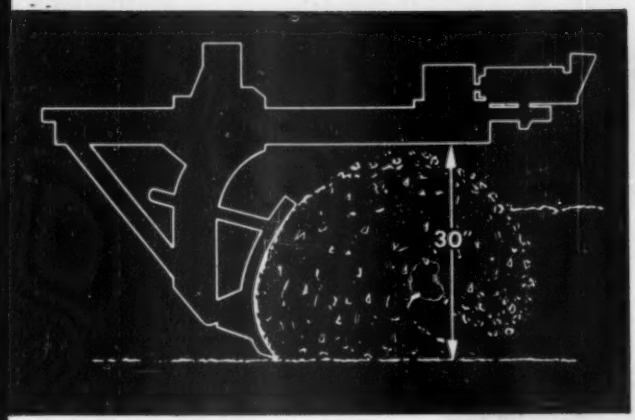
Now let's analyze the Allis-Chalmers 104-brake-horsepower AD-40 to see how it measures up to these stiff requirements.



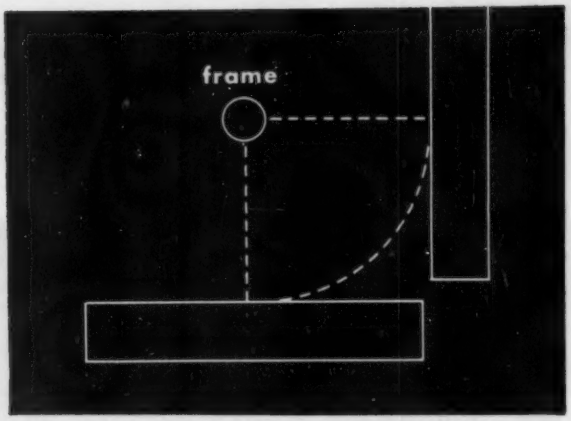
1 **A high-arch front axle** to straddle big windrows . . . take advantage of that 3-inch difference and let big loads pass through to the blade.



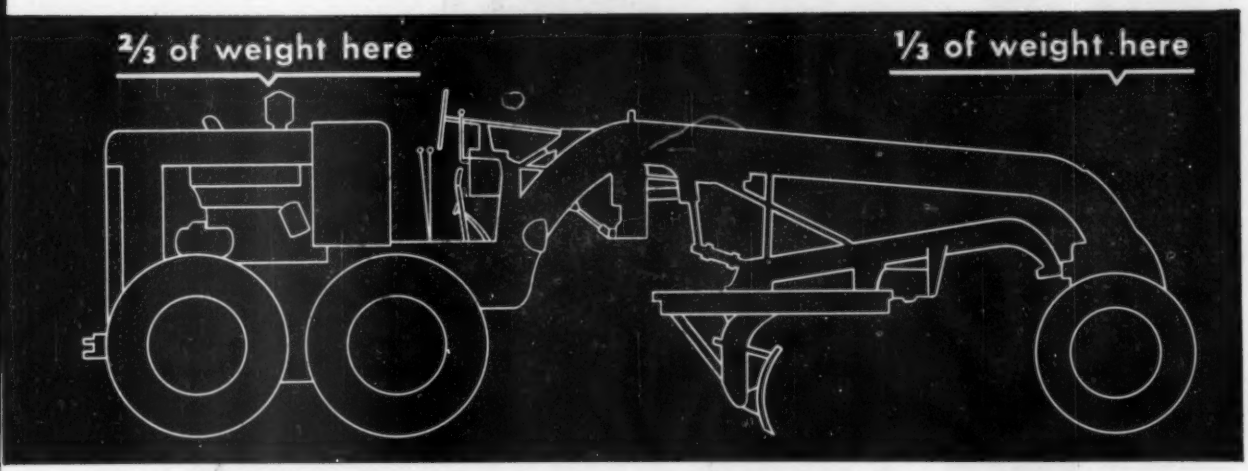
2 **A rolling-action moldboard** . . . to insure a "live" load that rolls freely off the blade . . . moves the load faster and takes full advantage of engine power.



3 **Ample throat clearance** . . . to handle 30 percent bigger loads without disturbing free, rolling action . . . and without jamming dirt, oil-mix or any other material against the circle.

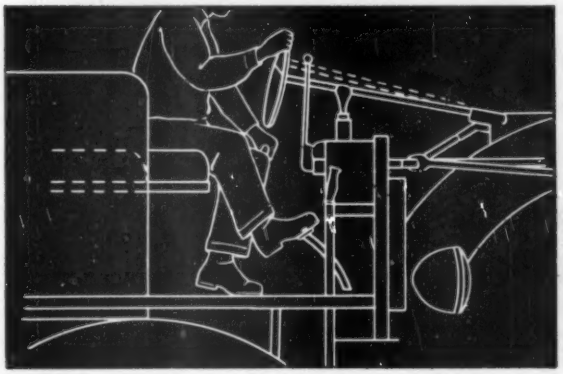


4 **Full blade freedom** . . . the exclusive tubular frame and a long tubular drawbar insure full blading effectiveness on the road, in the ditch or on the slope.



5 **Blading accuracy** is essential. A long wheel base, the tubular frame . . . and lift-cases located directly over the circle, provide smooth, accurate finishing.

6 **Balanced power, weight and traction** . . . a heavy-duty engine and *two-thirds* of the weight concentrated on tandem-drive rear wheels provide the best in traction, positive blade pressure and steer-ability.



7 **Easy control and visibility** — A big platform with plenty of leg room . . . adjustable seat and steering wheel . . . power steering will assure working ease. Single member frame, low control board and tapered platform corners provide "pilot-house" visibility.

This design, that combines working advantages every owner needs and wants, exists in only one motor grader . . . the Allis-Chalmers AD-40. *That's a fact* . . . a fact your Allis-Chalmers dealer will be glad to prove to you. Ask him to show you how the AD-40 gives you the *differences* that mean more work done . . . by a demonstration under on-the-job conditions.

ALLIS-CHALMERS
TRACTOR DIVISION • MILWAUKEE 1, U. S. A.

AD-40 Motor Grader
104 brake hp • Weight — 23,000 lb

IT TAKES A LOT OF

CONFIDENCE

(based on past experience and good judgement)

TO BUY, *in one order..*

W. G. Strickfaden, Fire Chief, Columbus, Ohio examines a portion of the shipment recently received from Bi-lateral Fire Hose Company..

Bi-Lateral! First to recognize the need for and construct fire hose with the Bi-Lateral feature.

First to change pin lug to rocker lug couplings.

First to offer FREE fire hose record cards to fire depts. They are still available.

6½ miles of FIRE HOSE!

Yes! A man must be *sure* of the value to his city before he places an order for 35,000 feet of fire hose. And with *Bi-lateral*, you *know* you can *always* be sure! Bi-lateral is the hose that is manufactured *without* a *single compromise*. As hose manufacturers we know we are dealing with *lives*, not dollars — and Bi-lateral Hose is built on the premise that "Safety is Worthless Unless it is *Absolute*."

Bi-Lateral FIRE HOSE CO.

20 N. WACKER DRIVE, CHICAGO 6, ILLINOIS

Which Catalogs Interest You?

Write directly to the manufacturers or use the coupon on page 31

Marks Parking Lines Quickly

32 H. C. SWEET CO., 24396 W. SEVEN MILE ROAD, DETROIT 19, MICH., offers a new line-marking device, Florline, that operates at walking speed, marking safety and parking lines within ½-inch of walls or curbing. Reported 20 times faster than hand marking, the unit provides straighter lines with the aid of a third wheel guide. It permits marking in narrow aisles, under obstructions, and close to cars and machinery. Write for details.

Asphaltic Concrete Airport Runways

33 A hot-mix asphaltic concrete is being used to surface the main runways of Philadelphia's International Airport, according to THE TEXAS CO., ASPHALT SALES DEPT., 135 E. 42nd ST., NEW YORK 17, N. Y. This resilient, heavy-duty type of pavement may be constructed on an asphalt penetration macadam or waterbound macadam base, and can be designed to meet the requirements of any municipal airport. New booklet on request.

Dependable Fire Hydrants

34 When choosing a fire hydrant, advises THE A. P. SMITH CO., EAST ORANGE, N. J., make certain that the pressure available in the main is also available at the nozzles. For this, a dependable, efficient unit is required, such as the Smith frost-proof fire hydrant. Conforming to A.W.W.A. specifications, Smith hydrants are made with 4-, 4¼-, 4½-, 5- and 6-inch valve openings for water working pressures up to 150 pounds. Also available are hydrants for intermediate and high-pressure services up to 300 pounds.

Stair Treads and Flooring for Municipal Plants

35 Open steel flooring and stair treads made especially for water, sewage and power plants by WALTER BATES CO., INC., JOLIET, ILL., are easy to keep clean of grease and water drippings. Strong and safe to walk on, they are constructed with hex crossbars of hot rolled steel fillet-welded to the main bars. A free booklet discussing Bates Grates will be furnished on request.

Fog Applicator Kills Flies and Mosquitoes

36 Wherever insects swarm — on garbage dumps, over swimming pools, and in parks and recreation areas —use the new Todd insecticidal fog applicator for effective pest control. The applicator discharges insecticide in a dry or wet fog which spreads quickly, permeating the deepest crevices. Data on the TIFA will be furnished by the COMBUSTION EQUIPMENT DIV., TODD SHIPYARDS CORP., 81-16 45th AVE., ELMHURST 73, N. Y.

Economical Sewer Maintenance

37 THOMAS DRAIN SERVICE, 35 S. COLLEGE ST., AKRON 8, OHIO, will rent to your city the equipment needed to maintain its sewers. The cost of this service is reported less than the cost of your equipment upkeep. Further details on request.

Protects Sewage Plant Equipment

38 Steel and iron work found in sewage-disposal plants are usually subjected to more than ordinary corrosive conditions, necessitating the application of a dependable protective coating. Hot-applied Bitumastic enamels and Bitumastic cold-applied coatings assure adequate, long-lasting protection by providing a thick,impenetrable barrier to corrosive elements. These coatings are fully described in literature from KOPPERS CO., INC., TAR PRODUCTS DIV., DEPT. 522-T, PITTSBURGH 19, PA.

Water Hammer Cured

39 *Bulletin 654* describes Williams-Hager flanged silent check valves for protecting piping systems from the damaging vibration and noise caused by water hammer. For your copy, write THE WILLIAMS GAUGE CO., INC., 3013 PENNSYLVANIA AVE., PITTSBURGH 33, PA.

Toll Booths

40 Communities operating parking areas, parks, or other facilities requiring the services of a guard or collector at the entrance, can install these prefabricated booths for safe, efficient toll collections. Constructed of steel, the self-contained booths are erected in hours, providing safe, comfortable working conditions. They are made by TALLER & COOPER, INC., 72 WASHINGTON ST., BROOKLYN 1, N. Y.

Ends Dust on Unpaved Streets

41 Keep dust off streets, park walks, parking lots, and tennis courts by applying Solvay Calcium Chloride to all unpaved surfaces. This easy-to-use, odorless chemical may be effectively applied to gravel, limestone, cinder, crushed stone, and similar surfaces. It is fully described in *End Dust*, a free book from SOLVAY PROCESS DIV., DEPT. 61-6, ALLIED CHEMICAL & DYE CORP., 61 BROADWAY, NEW YORK 6, N. Y.

Low-Cost Curbing

42 Use this new automatic curb-laying machine for street curb and gutter work and for traffic channelization, advises THE CANFIELD CORP., SALISBURY, N. C. Working equally well with asphalt, concrete, or soil cement, the unit is able to put down 1,500 feet of curb per day at a cost of about 33c per lineal foot. Concrete curbs may be placed on existing streets or roads where no curbing was originally provided. Write for literature.

Keeps Birds Away from Public Buildings

43 Pigeons, sparrows and starlings roosting on public buildings, cost your city dearly in cleaning labor and repairs. A simple, inexpensive way to get rid of these birds without injuring them, is to apply Bur-Co, a non-poisonous bird repellent that is safe to use on all surfaces. Available in 10-pound cans and 40-pound drums, Bur-Co is made by the BURR CHEMICAL CO., 3329 Auburn, ROCKFORD, ILL.

"Lawn Care" for 2 Years Free

44 How to plan and maintain attractive lawns is discussed in *Lawn Care*, a condensed edition of over 120 bulletins prepared by O. M. SCOTT & SONS CO., MARYSVILLE, OHIO. Included in the booklet are answers to a variety of lawn building and seasonal maintenance problems. A free copy, plus a free two-year subscription to future issues, will be sent on request.

Sewer Cleaning Made Easier

45 Cities using the new Wayne Ball can clean sewers effectively without using expensive machines, cables, augers or rods. Made by the SIDU CO., BOX 3537, LONG BEACH, CALIF., this handy sewer cleaning tool reduces sewer stoppage up to 90%. It not only removes sand, gravel, bricks, grease and roots, but it controls sulphide generation and odors as well, and assists in the control of H_2S gas. Write for details.

Transforms Leaves into Valuable Mulch

46 The tedious job of raking, hauling and burning fallen leaves is avoided when parks and recreation areas are equipped with a Turbo Jet. This new power leaf mill uses a high velocity stream of air to pick up the leaves, then cuts them into a powdery chaff and blows them back into the lawn. The time-saving device is made by THE TURBO JET MFG. CO., 22 BOWMAN TERRACE, CINCINNATI 29, OHIO.

Emergency Electric Power

47 Vol. 10, No. 2 of *Power Points Digest* describes and illustrates Onan electric generating plants in a variety of municipal applications. These dependable units provide adequate emergency power when regular power fails. Copies of the Digest are available from D. W. ONAN & SONS INC., 8364 UNIVERSITY AVE., S.E., MINNEAPOLIS 14, MINN.

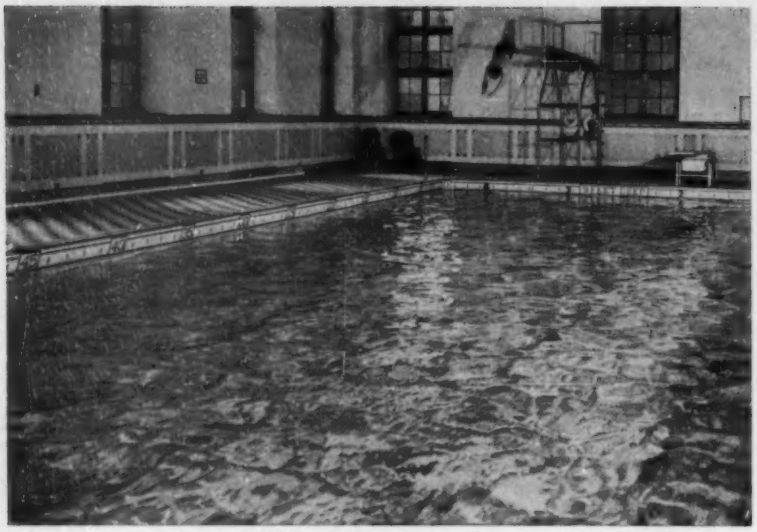
A Low-Cost Solution to All Your Park Problems

48 Many maintenance problems facing city officials can now be solved with one combination self-propelled power unit, and a number of handy attachments. The Kut-Kwick unit, with proper attachment, may be used for mowing lawns, clearing weeds and brush, felling trees, mulching leaves, plowing, dozing or removing snow, and for providing power for generating electricity, volume pumping, and spraying. It is described in literature from the KUT-KWICK CORP., BRUNSWICK, GA.

Treating Water and Sewage Waste

49 A line of water and sewage waste treating equipment, including circular and rectangular clarifiers, thickeners, flocculating units, and sewage-sludge digesters are contained in *Bulletin AH-442*, available on request from HARDINGE CO., INC., 240 ARCH ST., YORK, PA. Featured are several typical flow sheets, a description of auxiliary apparatus, and numerous illustrations of clarifier installations.

(Please turn to page 38 for more Bulletins)



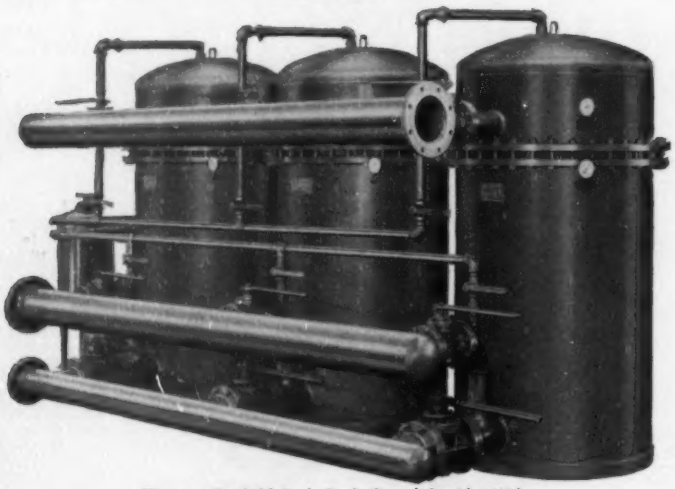
for lasting pool clarity with least manual care

Chances are, if you are concerned with the specification or performance of swimming pool filters, you know that the job is done best by diatomite filtration. But you may not know the vast difference in design, operation and cost among the several makes of filters employing a filter aid.

The new Adams SPF is identical in basic design to the Adams Poro-Stone filters that have met the high standards of industrial water filtration for nearly two decades. Now pool operators get for a moderate price, more filtering surface in less space, easiest possible operation and delivery virtually from stock. Range of filter capacities for small and large pools.

TODAY'S FINEST DIATOMITE Swimming Pool Filter

ADAMS SPF



Filter at Garfield Park Pool, Grand Rapids, Mich.

for further information, write to

R. P. ADAMS Co., Inc. 232 E. PARK DRIVE BUFFALO 17, N. Y.

More Literature

Write directly to the manufacturers or use coupon on page 31

Fire Hydrants and Gate Valves

50 Standardized mechanical joint products produced by this company include gate valves, sizes 2 to 30 inches inclusive, check valves, post indicator valves and hydrants. Standardized mechanical joints are easy to install. There is no caulking. Write for *Catalog M52* to M & H VALVE & FITTINGS COMPANY, ANNISTON, ALA.

Mechanical Accountant Aids Municipalities

51 Grand Rapids, Mich., reports a considerable savings in time and money through the use of Underwood Sunstrand accounting machines. The City Assessor's office and the City Treasurer's office use the machines twice yearly solely for extending taxes on both tax rolls and tax bills simultaneously. The machines quickly, accurately, and automatically multiply valuation by tax rate, and the work is completed in 20 days. Write the UNDERWOOD CORP., ONE PARK AVE., NEW YORK 16, N. Y.

Prestressed Concrete Lighting Standards

52 These prestressed Hy-Lite Spun-Crete street-lighting standards are rigid under designed loads and flexible under overloads. Their exacting construction standards permit them to withstand deterioration even under severe temperature changes. Maintenance is reduced by a water-polished granite finish, and long wear is assured by prestressing. The AMERICAN CONCRETE CORP., 5092 N. KIMBERLY AVE., CHICAGO 30, ILL., will furnish full details.

Water Conditioning Equipment

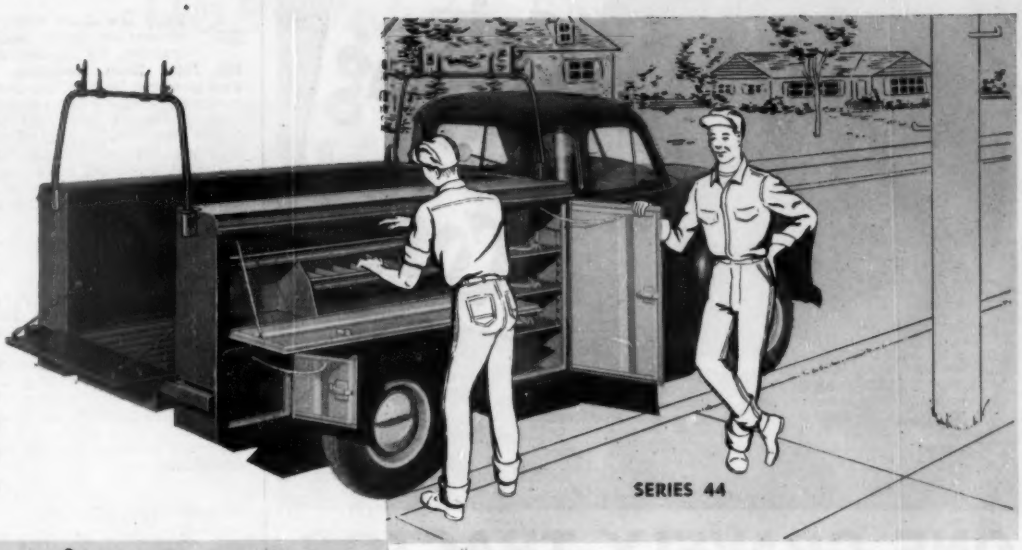
53 *Bulletin WC-113* contains a full description of efficient, economical equipment for removing hardness, turbidity, color, organic matter, taste, odor, iron and manganese from municipal water supplies. A special section, of interest to the small community, tells how the Graver Reactivator can be adapted to use in an integrated package plant for water clarification and softening. Also discussed are better ways of treating swimming pool water, and a complete line of feed-water softening and deaerating units for municipal steam power generating stations. Write GRAVER WATER CONDITIONING CO., 216 W. 14th ST., NEW YORK 11, N. Y.

Cleans 30 Catch Basins Daily

54 Using the new Krane Kar swing-boom crane, one man can clean as many as 30 catch basins a day. A simple operation lowers the bucket into the manhole, raises the filled bucket, tops and swings the boom, and empties the bucket into the truck. Accessories are available enabling the Krane Kar to transport machinery, lay pipe, set poles, and handle scrap, curbings, sand and gravel. Write SILENT HOIST & CRANE CO., 846 63rd ST., BROOKLYN 20, N. Y.

(See page 40 for more Bulletins)

POWERS *American* SERVICE BODIES AND EQUIPMENT

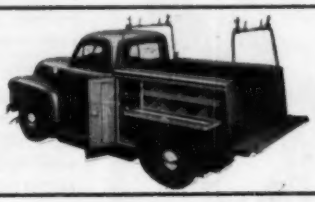


The 1 Source
for utility bodies and equipment!

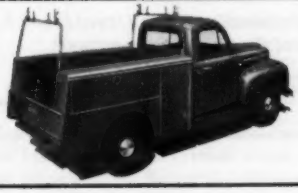
If your work calls for one service body or a hundred . . . if you can use standardized units or require custom-made equipment . . . you'll find a body to fit your needs in the Powers-American line. Ladders, reels, racks, hooks, brackets, shelves, and other special items of equipment, can be furnished for your particular work requirements.

May we help you with your service body problems? Complete details will be sent upon request.

Series 44L and Series 44 (shown above) designed for any general service work. Fully-equipped with shelves and bins. For ½, ¾, 1, and 1½ ton chassis.



Series 25T and 35T arranged for telephone installation and service. Widely used in other phases of utility work. Available in ½ and ¾ ton sizes.



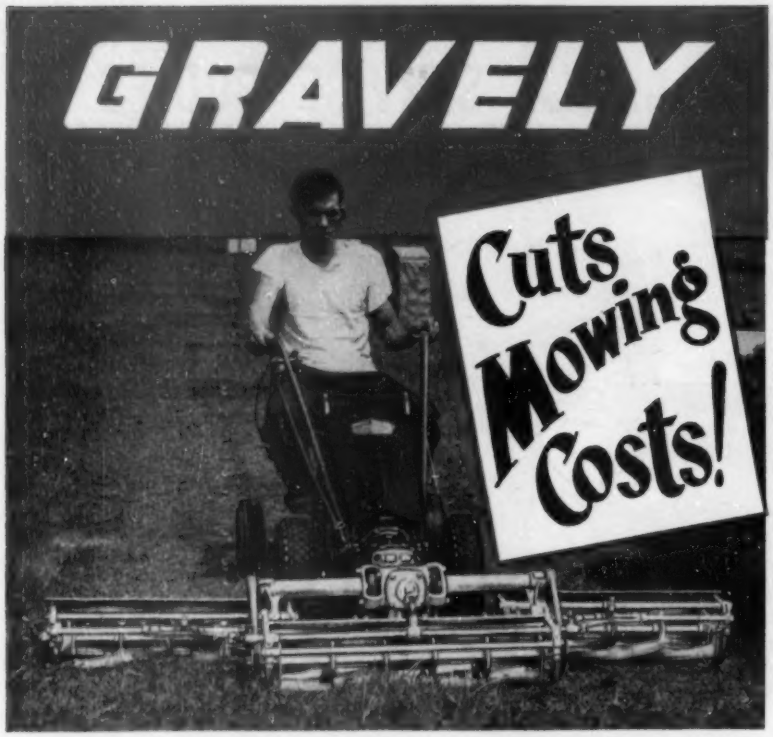
Series 25M and 35M used for all types of general service. Especially suitable for electric meter installation and maintenance. Models for ½ ton and ¾ ton vehicles.

Series 25G and 35G designed for use in the installation and servicing of gas meters. Equipped with meter hold-downs, bins, and pipe rack. In ½ and ¾ ton sizes.

POWERS-AMERICAN DIVISION

McCABE-POWERS AUTO BODY COMPANY

5900 NO. BROADWAY • ST. LOUIS 15, MO.
428 LATHAM SQ. BLDG. • OAKLAND 12, CALIF.



ONE GRAVELY TRACTOR
Powers 3 Mowing Tools!

Cut mowing costs—make only ONE investment in the power unit for ground maintenance tools. 5-HP Gravely gives you your choice—from 21 different tools—including three mowers!

REEL MOWER for fine lawns, quickly converted to 72" Gang Mower by attaching Gang Units. Add Sulky, cover more ground faster with less fatigue. ROTARY MOWER for lawn and weed cutting . . . with optional LEAF MULCHER assembly. SICKLE MOWER for tough weed and brush cutting jobs!

And remember, with Gravely, you have *twice* the power of the usual power mower!

PLUS 3 SNOW REMOVAL TOOLS

Snowblower, Snowplow, and Power Brush attachments make snow removal fast and easy . . . you change from job to job by removing and replacing only four bolts . . . suit the tool to the job or season in minutes!

PROOF... BY FREE DEMONSTRATION!

Yes, cut costs . . . and we will prove how you can . . . how you get more for your money when you get Gravely! A FREE demonstration is yours on request . . . *at no obligation*. Or write for "Power Vs. Drudgery" catalog, FREE!

GRAVELY TRACTORS, INC.
BOX 73 DUNBAR, W. VA.

Catalogs for You

Write directly to the manufacturers or use coupon on page 31

Protects Trees from Insect Parasites

55 Keep the shade trees in parks and recreation areas healthy and attractive, by protecting them with the John Bean Rotomist, an improved unit powered by a Willys Jeep engine, and mounted on any truck or trailer. Equipped with a 29-inch axial-flow fan which delivers 28,000 cubic feet of air per minute at 100 miles velocity, the Rotomist offers accurate, on-target delivery. Write JOHN BEAN, DIV. OF FOOD MACHINERY and CHEMICAL CORP., LANSING 4, MICH.

One Man Operates Brushcutter

56 *The Story of the Six-to-One Cut*, a new booklet from BRUSHMASTER SAW, INC., 1284 EMERALD ST., KEENE, N. H., explains how one man can do the work of six, cutting all brush from matted grass to saplings. Operating from right to left, the power-driven Brushmaster cuts vines, briars, honeysuckle, and thorns. It is an ideal unit for parks, and can save cities up to 83% on right-of-way maintenance.

Waste Receptacles

57 A variety of waste receptacles in different shapes and sizes are made by UNITED METAL BOX CO., INC., BROOKLYN 15, N. Y. Among them are swing-top units for public buildings, schools, and parks, and attractive round-top receptacles to meet the demands of modern decor. Descriptive catalog furnished on request.

Small Size Crawler Tractor

58 *Terratracs and Their Equipment*, features the full line of Terratrac crawlers along with such accessory equipment as bulldozers, angledozers, digging loaders, and winches. The catalog discusses the various tractors as to size, power, price, and performance, and contains complete specifications of each model. Copies are obtainable from the AMERICAN TRACTOR CORP., CHURUBUSCO, IND.

Mercury Street Lighting Unit

59 Municipalities can use this open 100-watt mercury street lighting unit to graduate the transition from brightly illuminated main thoroughfares to dimly lit residential streets. The unit gives 3,300 lumens (initial), and has from 6,000 to 8,000 hours of life. For complete information, write the WHEELER REFLECTOR CO., 275 CONGRESS ST., BOSTON, MASS.

Economical Street Sweeper

60 Communities interested in a low-cost unit that will sweep streets clean of dirt, trash, brickbats—even snow, are offered literature on the Road Bird 8 by LITTLE GIANT PRODUCTS, INC., PEORIA, ILL. Quickly attached to any motor vehicle or tractor, the sweeper features an engine, mounted on the brush broom, that turns with the brush. There is a large platform for drums of water, and an optional sprinkler system that wets down both brush and sweepings.

(See page 42 for more Bulletins)

Announcing

ORTHOSOLV*

...the Emulsifiable Orthodichlorobenzene

For Suppressing Objectionable Odors!

For Effective, Efficient, Economical Deodorizing of

- LAND FILLS
- SEWAGE PLANTS
- DRAINAGE DITCHES
- STORM SEWERS
- MARKET AREA STREETS
- REFUSE CANS and TRUCKS

... or wherever you've got an objectionable odor problem!

Can Be Used With:

- STREET FLUSHERS
- PRESSURE PUMPS
- HAND SPRAYERS

Now available for the first time—*at a practical price*—an orthodichlorobenzene that is readily emulsifiable in water!

ORTHOSOLV is the simple, inexpensive way to overcome complaints resulting from temporary or regular odor conditions. Mix ORTHOSOLV and water in proportions as dilute as 1 part ORTHOSOLV to 100 parts of water.

ORTHOSOLV is simple to prepare—just mix with water and it's ready for use. A solution of ORTHOSOLV can be applied by unskilled labor without any special equipment, experience or knowledge. Most localities can use their present equipment without making any large initial investment.

For Tar and Grease Removal

ORTHOSOLV is an efficient solvent for tars and greases. Can be used to clean equipment and garage floors. ORTHOSOLV is easily removed by flushing with water or steam-jennies.

TEST SAMPLES AND LITERATURE AVAILABLE AT NO COST OR OBLIGATION!

Write today for complete details on how ORTHOSOLV can quickly, easily and economically rid your community of odor problems.

*Trade Mark

SOLVAY ORTHOSOLV

Allied Chemical

GET ALL THE FACTS—MAIL COUPON NOW!

SOLVAY PROCESS DIVISION, ALLIED CHEMICAL & DYE CORPORATION
61 Broadway, New York 6, N. Y.

Gentlemen: Please send me the following:

☐ FREE TRIAL SAMPLE OF ORTHOSOLV
☐ Complete information and prices on ORTHOSOLV

Name_____

Company_____

Position_____

Address_____

City_____ Zone____ State_____

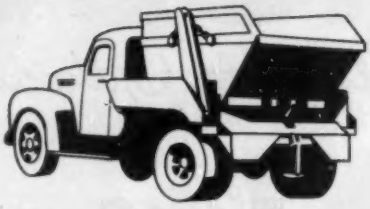
DO-6

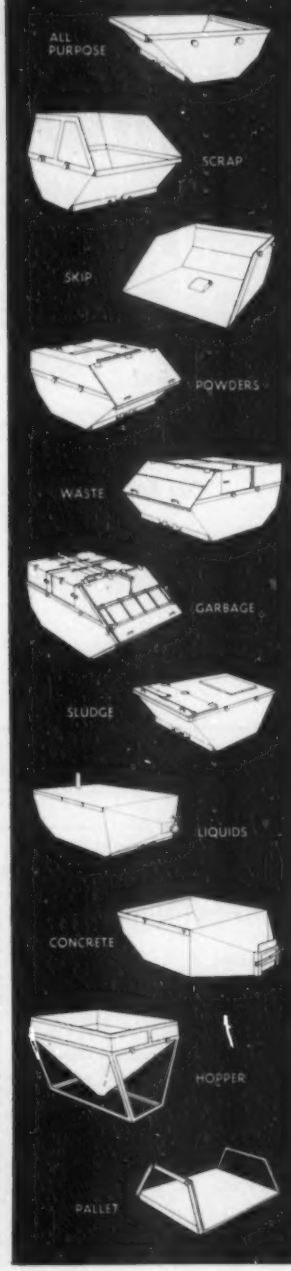
Hoists and containers which let your truck

pick up
haul
dump
put down

all kinds of materials.

LOAD LUGGER





The LOAD LUGGER is a flat truck bed with powerful hydraulic hoisting arms. Mounted on any standard truck chassis it lifts up to 18,000 pounds and is operated by the driver from his cab.

The LOAD LUGGER-truck is used as an ordinary flat-bed truck when desirable, picking up and putting down bulky or heavy materials with its hoisting arms and carrying all materials on its bed.

The LOAD LUGGER-truck is most effective, however, when used with a variety of patented LOAD LUGGER containers, holding up to 15 cubic yards, or pallets. It hoists them in a level position, carries them cradled on its bed with load well forward, dumps them, and puts them down.

The LOAD LUGGER SYSTEM is for one truck and driver to do the work of many by continually picking up, hauling, dumping, and returning a number of LOAD LUGGER containers or pallets.

The LOAD LUGGER-truck carries more pay load than does any comparable equipment. Its patent-protected simplicity of design and construction, with no cumbersome superstructure or fancy gadgets, results in a lower first cost and lower maintenance costs. Any truck driver can operate the LOAD LUGGER — efficiently and safely.

manufactured by the

BROOKS
EQUIPMENT & MFG. CO.
202 Davenport Road
Knoxville, Tennessee
USED ALL OVER THE WORLD
Send for a catalog today.

More Literature

Write directly to the manufacturers or use coupon on page 31

Outboard Motor for Police Rescue Work

61 A touch of a button and the electric starting Sea-Horse 25 is in action, rushing police and rescue workers to the scene of water accidents. This automatic outboard motor is equipped for manual starting as well, and has a 6-gallon Mile-Master fuel system. The operator is able to choke, start, shift, throttle, steer, and stop without leaving his seat. A free catalog will be sent by JOHNSON MOTORS, 6000 PERSHING RD., WAUKEGAN, ILL.

What To Do About Failing Street Surfaces

62 When street surfaces fail it is often due to excess water in the subgrade. To remove unwanted water, install a subdrain of Armco perforated pipe at the correct depth and location. Easy and inexpensive to install, the 20-foot sections of Armco pipe keep the subgrade dry and stable, eliminating costly maintenance. How to save a street surface, is discussed in literature from ARMCO DRAINAGE & METAL PRODUCTS, INC., 2634 CURTIS ST., MIDDLETOWN, OHIO.

Front-End Loaders and Truck Mixers

63 The front-end loaders designed by this company feature patented "bucket-rocking action" for faster, heaped loads, a new torque-converter, and a clutch-type reversing transmission, reducing reversing time some 95%. The Le Roi powered, truck-mounted mixer-agitators combine quick mixing action with fast loading, and speedy discharging of slump concrete. Both units will do a variety of city jobs quickly and easily, operating at less cost. They are made by the LE ROI CO., MILWAUKEE 14, WIS.

A Good Mower for The Small Park

64 Use the Parkhound 21 lawn mower on large lawns and in small public parks. Powered by a Briggs & Stratton 4-cycle engine, the unit may be utilized for all your heavy mowing, cutting from 2 to 4 acres a day. It has a heavy-duty lower cutter blade with a raised lip, air-cushion truck-type tires, and a hand-lever starter. Address THE ECLIPSE LAWN MOWER CO., PROPHETSTOWN, ILL.

Cleans Catch Basins Quickly

65 A safe, easy way to clean the sewer catch basins in your community thoroughly, is to use an orange-peel catch basin bucket, designed by THE HAYWARD CO., 50 CHURCH ST., NEW YORK 7, N. Y. Hayward buckets are fully described in *Bulletin 805*.

Simplify Your Tax Accounting

66 The handy booklet, *New Speed, Ease, Simplicity in Tax Accounting*, explains the operation of the Burroughs tax accounting machine, a combination typewriter and calculator that computes, types, and posts; all at the same time. Since the operator has only to enter the valuation, this new, time-saving device virtually eliminates the possibility of human error. A free copy of the booklet will be sent by the BURROUGHS CORP., DETROIT 32, MICH.

how much does it cost to run the old model?

Even if you bought new today one of the old model chlorinators, you can actually scrap it right now and save money!

How can such a thing be?

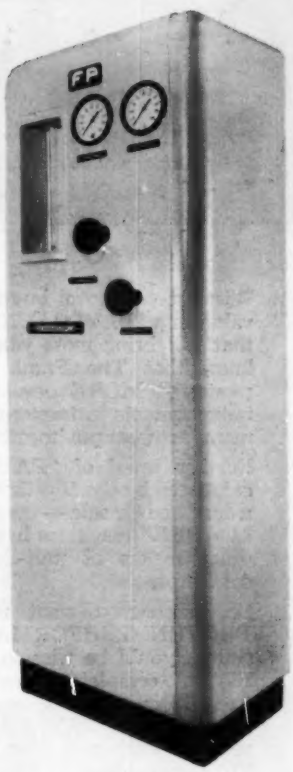
In hundreds of installations using F & P Chlorinators it has been proven conclusively that costs of operation and servicing are so much lower than old style chlorinators that it actually *costs money* right from the first day of operation to have an old style chlorinator.

Fischer & Porter designed this new chlorinator right from the floor up. New materials are used throughout to make it impervious to corrosion. Encased in a fibre-glass cabinet, the new F & P Chlorinator handles chlorine —in fully enclosed, tightly sealed, corrosion resistant pipes and components. It is the best, safest, most efficient, easiest operating chlorinator ever devised.

Right from the purchase price you save money on an F & P Chlorinator. And you save money every day thereafter, because you have less maintenance cost, less chance of breakdown with sky-high service charges, no need for multiple reserve units or scores of spare parts, no wasted chlorine gas lost through water seals.

As a top municipal official, as an ethical consultant, as a practical operating man—you must admit if all these things we say are true, you can't afford to ignore this new chlorinator.

It won't cost you a single penny to *get the facts* about the F & P Chlorinator. It will obligate you in no way. Why not write today?



FP

T.M., F&P CO.

complete process instrumentation

FISCHER & PORTER CO.

5330 Fischer Road, Hatboro, Penna.

LA-1005

18 YEARS EXPERIENCE SUCCESSFULLY MANUFACTURING CHLORINE FLOW METERING EQUIPMENT

Why do municipalities *prefer* PAYLOADER® TRACTOR SHOVELS?

compare these two items

ORDINARY TRACTOR SHOVEL

¾ Yd. [redacted] tractor shovel, nearly new, used only 4 mo's. Will sacrifice for half price. Phone [redacted]

The above newspaper classified ad appeared in March, 1954.

PAYLOADER TRACTOR SHOVEL

Top price at the Auction Sale among used tractor shovels was for a HOUGH Model HF "PAYLOADER", 2½ years old, which brought 68% of its original price. The unusually high price came as a complete surprise to even the auction officials.

The above report appeared in an April, 1954 publication.

Wise tractor-shovel buyers know there's more value in a "PAYLOADER" when it's new and that it'll bring more when they sell it. They know that The Frank G. Hough Co. has pioneered MORE developments and MORE improvements in tractor-shovels than all other manufacturers put together.

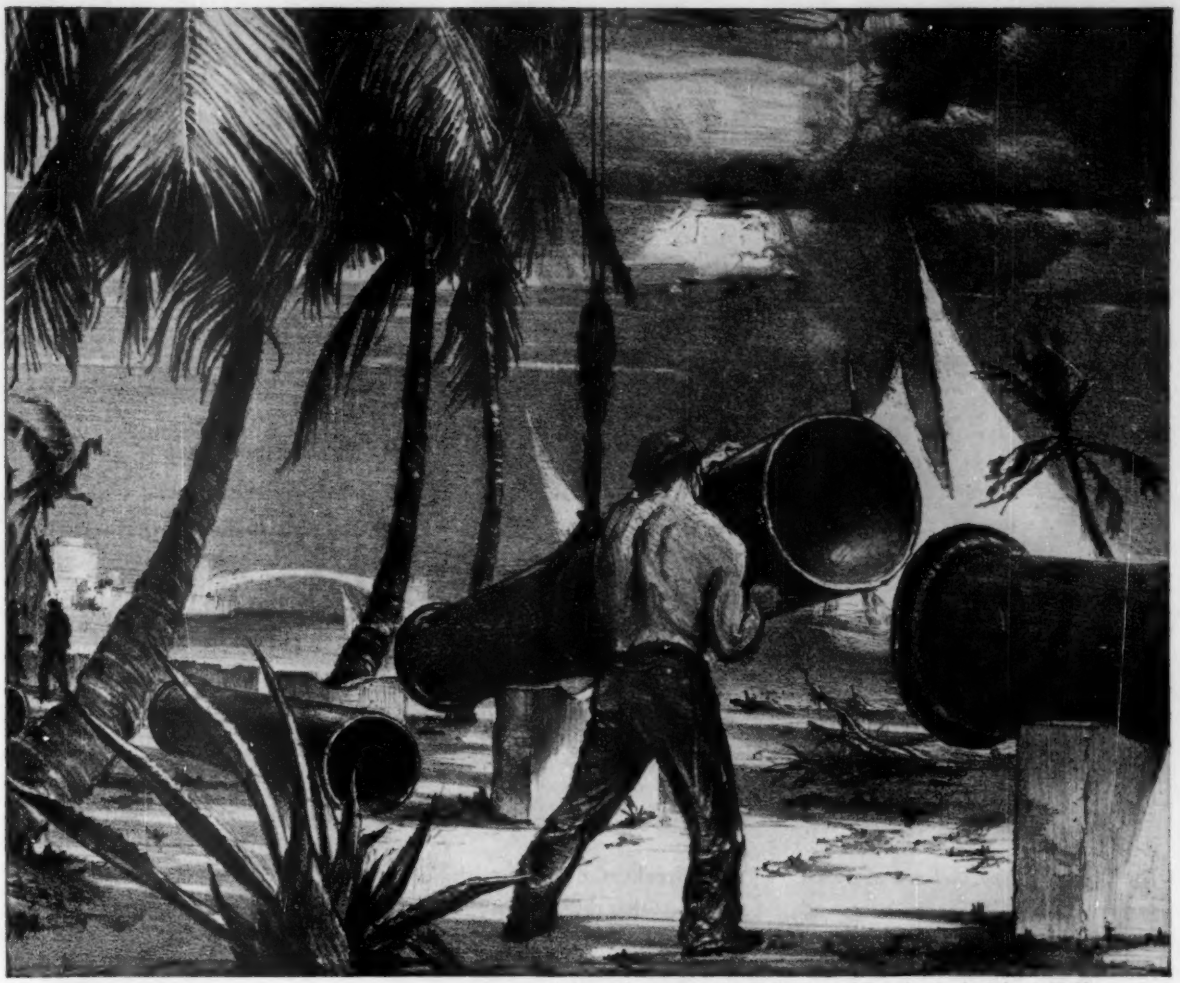
Further proof of "PAYLOADER" value is evidenced by the fact that you will seldom find a *used* one for sale — even though more "PAYLOADER" machines have been built than all other makes of unit-design tractor-shovels combined.

So, when you want maximum value and PROVEN PERFORMANCE in a tractor-shovel, you'll be wise to buy a "PAYLOADER". A complete range of sizes and models from 12 cu. ft. to 2 cu. yd. bucket capacity. Your nearby "PAYLOADER" Distributor is ready to serve you. The Frank G. Hough Co., 710 Sunnyside Ave., Libertyville, Illinois.

This is a Model HF "PAYLOADER" tractor-shovel like the one that brought top price in the Auction Sale quoted above.

You can't compete if your equipment is obsolete.

PAYLOADER®



Lithographed on stone for U. S. Pipe and Foundry Co. by John A. Noble, A. N. A.

WHEN THE GROUND is unstable or a definite grade has to be maintained cast iron pipe is frequently laid on piers or pile bents. Whether above ground or underground there are installations of cast iron pipe with continuous service records measured in generations.

We are well equipped to furnish your requirements for cast iron pipe and fittings made in accordance with American Standard, Federal and American Water Works Association specifications. U. S. pipe centrifugally cast in metal molds is available in sizes 2- to 24-inch and pit cast pipe in the larger sizes with bell-and-spigot, mechanical, flanged or other types of joints.

U.S. cast iron PIPE

FOR WATER, GAS, SEWERAGE AND INDUSTRIAL SERVICE

United States Pipe and Foundry Co.,
General Office, 3300 First Ave., N. • Birmingham 2, Ala.
Plants and Sales Offices Throughout the U. S. A.

JOY PAVING BREAKER WINS, CROWNED CHAMP

Recent impartial test proves JOY K-81 best breaker

There were no frills to this particular outfit's testing methods. To find the best Paving Breaker, they simply lined up all competing tools and let 'em go to it. In a matter of minutes, this acid test indicated which was superior.

Such a test is Joy's meat. For example, although the K-81 Paving Breaker is listed in the 82 lb. class, it beat all competition in the 85 lb. class, including machines weighing as much as 91 lbs!

The tests showed a clean sweep for Joy. Class for class, Joy Paving Breakers walked away with the ribbons.

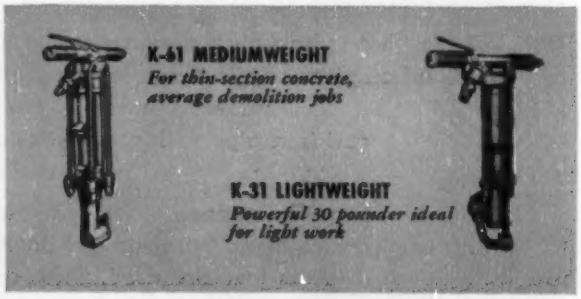
...AND NO WONDER JOY BREAKERS ARE TOPS.

Joy Breakers are cadmium-plated *inside and out* to stop rust and corrosion, prevent scoring, speed running-in. Lubrication is automatic—throttle movement sends a shot of oil to all working parts.

Joy Breakers operate with less jarring . . . that means less operator fatigue. There's less maintenance and replacement with Joy. Interchangeability of parts allows a smaller inventory.

Get the full story today. Write for descriptive booklets to **Joy Manufacturing Company, Oliver Building, Pittsburgh 22, Pa.** In Canada: *Joy Manufacturing Company (Canada) Limited, Galt, Ontario.*

K-89 SUPER HEAVYWEIGHT
90 lb. model for heavily reinforced concrete sections
K-81 HEAVYWEIGHT
Faster, heavier blows, easier to hold and operate


K-61 MEDIUMWEIGHT
For thin-section concrete, average demolition jobs
K-31 LIGHTWEIGHT
Powerful 30 pounder ideal for light work

DUAL-VALVE MAKES AIR DO MORE WORK!

Permits higher drilling speeds with lower air consumption. Cuts drilling costs.

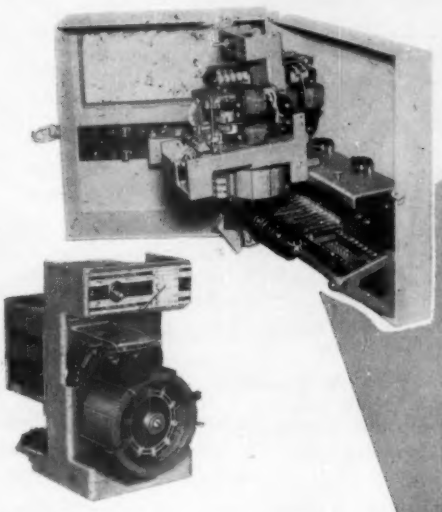
JOY

CONSTRUCTION EQUIPMENT MANUFACTURERS FOR OVER HALF A CENTURY

For the Most Modern TRAFFIC CONTROLLER Today

. . . with an eye to the future

SEE the NEW **EAGLE** *"EF20"*



The Eagle "EF 20" is the latest in modern design to best answer your present traffic problems and insure complete flexibility for your future demands. The "EF 20" has been developed from years of outstanding achievement in the field. Eagle led the way with the first expandible controller, Eagle again leads with the new EF 20 Controller. Modern design means lowest maintenance. The "EF 20" is completely accessible from the front of the cabinet. All extra features may be easily installed using only simple tools. Controller is wired complete for 19 signal circuits. Ask for a demonstration today.

INSIST ON THE BIG 3

1. The most accessible Multi-dial controller available today.
2. The most adaptable controller for your future demands.
3. The most modern Multi-dial controller for easiest maintenance.

EAGLE SIGNAL CORPORATION *Moline, Illinois*

HOW LARGE IS YOUR COMMUNITY?

C-E RAYMOND SEWAGE DISPOSAL SYSTEMS SERVE BOTH LARGE AND SMALL

IN BALTIMORE, FOR EXAMPLE — the new sludge drying plant was placed in service late last year. Serving a population of nearly a million people, the new installation is designed to dry the sludge from 125 million gallons of sewage a day.

An important part of the huge Back River Treatment Works, the plant was designed by Whitman, Requardt & Associates, Baltimore.

Three C-E Raymond Flash Drying Systems dry the digested filtered sludge, to produce high quality fertilizer at the rate of 15,000 to 27,000 tons a year.

Many other large communities have discovered the practical answer to sludge disposal problems in C-E Raymond Systems. Chicago . . . Los Angeles . . . San Francisco . . . Washington — these large cities alone have in operation or under construction C-E Raymond equipment to serve an equivalent population greater than 11,000,000.

The popularity of C-E Raymond Systems does not stop with larger cities, however. In communities with equivalent populations as low as 6,000, this equipment has been proved in years of actual service. As a matter of fact, the aggregate capacity of C-E Raymond Systems installed, under construction or on order is *nearly 50% more than the total of all other heat methods of sludge disposal combined.*

So, whether your community is large or small — look to the leader for the most efficient end to your sludge disposal problems. For details, just get in touch with the C-E Raymond office nearest you.

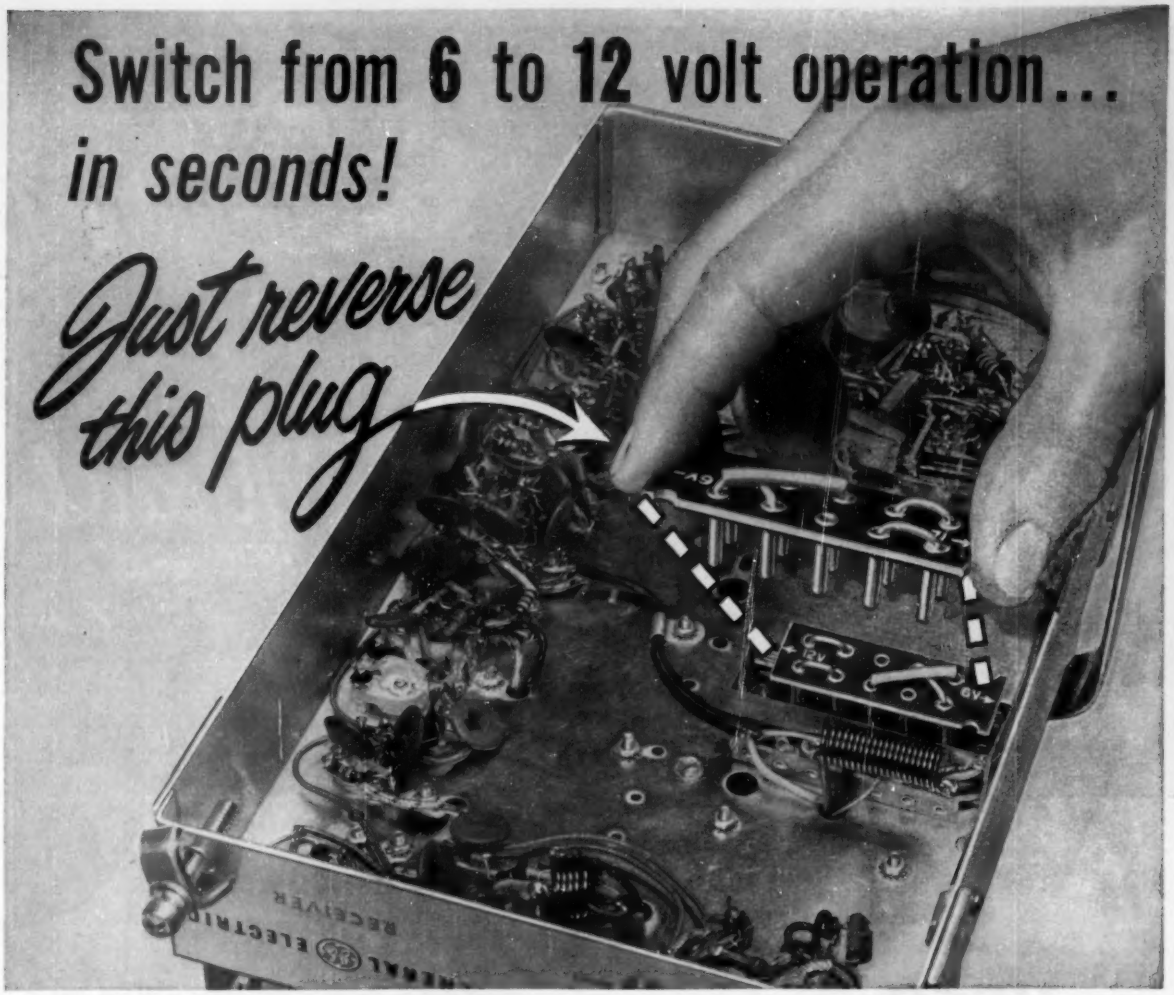
B-717

COMBUSTION ENGINEERING, INC.

RAYMOND DIVISION: 1315 North Branch Street, Chicago 22, Illinois

Western Office: 510 W. Sixth Street, Los Angeles 14, Cal. • *Eastern Office:* 200 Madison Avenue, New York 16, N. Y.

ALSO FLASH DRYING AND INCINERATION SYSTEMS FOR INDUSTRIAL WASTE DISPOSAL



THERE ARE NO EXTRAS TO BUY...NO CABLES TO REPLACE!

Little more effort is required to change over than it takes to *twist your wrist.* General Electric's *built-in flexibility* takes care of your future needs today!

This simplified conversion formula is exactly the same for any one of four G-E 2-way radio systems. Be sure to keep this in mind when you make a decision to buy communications equipment. With General Electric you will benefit from obsolescence-proof design and gain superior efficiency of mobile radio equipment.

THE UNIQUE 6/12 FEATURE IS BUILT-INTO THESE G-E 2-WAY RADIO SYSTEMS:

MC-2	15-watt	25-50 MC
MC-4	30-watt	25-50 MC
LP-6/12	3-watt	25-50 MC
LPH-6/12	3-watt	152-174 MC

You can put your confidence in—

GENERAL ELECTRIC

2-WAY MOBILE RADIO

General Electric Company, Section X1064
Electronics Park, Syracuse, New York

Please send me the following General Electric 2-way radio bulletins:

☐ MC-2 ☐ MC-4 ☐ LP-6/12 ☐ LPH-6/12

NAME.....

ADDRESS.....

CITY..... STATE.....

NOW all the HOT PATCH material you want..any type..any quantity where and when you want it

for ALL maintenance and small paving jobs

the NEED

In the face of ever heavier traffic loads, rising costs and lack of funds greatly limit new construction and place an ever greater burden on maintenance programs in city, town, county and state. For this work even the best patch is none too good. Yet until the advent of the new Mixall, an efficient and economical means of producing all types of hot high quality patch material has not been available.

is ANSWERED

A small, highly portable unit, capable of on-the-spot production of even the highest types of hot mixes comparable to those produced in Barber-Greene's largest continuous hot mix plant—*that* is the Mixall. Its range of usefulness extends throughout the field of road maintenance into small paving and resurfacing jobs.

In the Mixall, Barber-Greene offers a unique and effective combination of an efficient rotary drum aggregate dryer with a proved B-G twin shaft heated pugmill mixer. It is rightly called the Mixall because of *all* the things it can do . . .

- . . . **Mix all quantities:** from a single 300 lb. batch up to 5 tons per hour of hot mix—or up to 10 tons per hour of cold patch.
- . . . **Mix in all locations:** towed to the job by truck loaded with aggregate . . . fed directly from truck or from stock pile or pit. Can work in a single traffic lane. No set-up time required.
- . . . **Mix in all weather:** heated aggregate makes low atmospheric temperature mixing possible — allows quick repair to prevent major failures.
- . . . **Mix all types:** of bituminous materials including stabilized mixes—as well as low slump Portland cement mixes.

Barber-Greene BG

Aurora, Illinois, U. S. A.

Armco Liner Plate is installed as failing monolithic sewer is removed ahead of it.

Solve Failing Sewer Troubles ...For Good

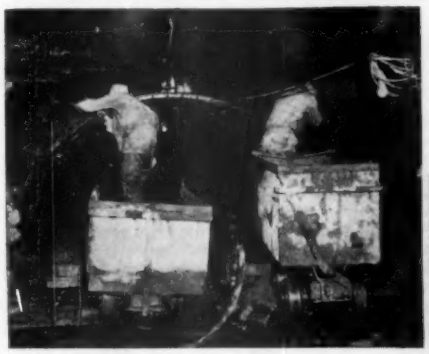
You can restore failing sewers and add years of trouble-free service with Armco Liner Plate.

These corrugated metal plates are quick and easy to install. There is no danger of disjointing or malalignment. And the restored structure has ample strength to resist loads without crushing or cracking.

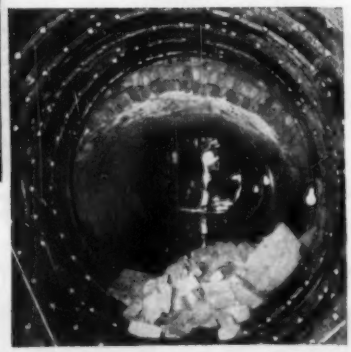
Armco Liner Plate is installed from inside the sewer. The plates are bolted together along two flanged sides to form a ring of uniform strength. One or two men can readily carry, hold and bolt individual plates into place. Work goes quickly with a small crew.

Armco Liner Plates are made in a wide range of sizes and gages to meet specific needs. They are available in elliptical shapes and arches, as well as full round structures. Write us for complete Liner Plate information. Also ask about other Armco Structures for saving failing sewers. There's a size and type for almost every need. Armco Drainage & Metal Products, Inc., 3994 Curtis Street, Middletown, Ohio. Subsidiary of Armco Steel Corporation. In Canada: write Guelph, Ontario. Export: The Armco International Corporation.

This monolithic box sewer gets new life with Armco Liner Plate. The void between the new and old is grouted to prevent settlement.



ARMCO LINER PLATE



Armco Liner Plate was the answer when the top of this sewer sagged.

LIGHT WEIGHT, LOWER PRICED . . . . YET FULL CUTTING CAPACITY

NEW one-man power brushcutter

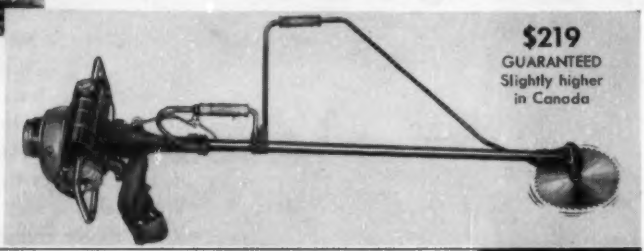
BRUSHKING

Takes drudgery and expense out of brush clearance!

- **ECONOMY . . .** 1 man with Brushking does work of 6 with old fashioned brush hooks and axes! Quickly pays for itself!
- **SAFETY . . .** Operator cannot come in contact with moving saw blade . . . principle approved by industrial and safety engineers!
- **EFFICIENCY . . .** Clean, close-cropped job on all brush from matted grass, weeds, briars, honeysuckle . . . even trees up to 8" in diameter. Cuts at any angle!
- **CONVENIENCE . . .** Light (29½ lbs.), self balanced. Easy for anyone to operate. Reaches into ditches, along walls, fences, all hard-to-get-at places!

Ideal Brush cutter for:

- *Forestry Departments*
- *County road crews*
- *Farmers, estate owners*
- *Park Departments*



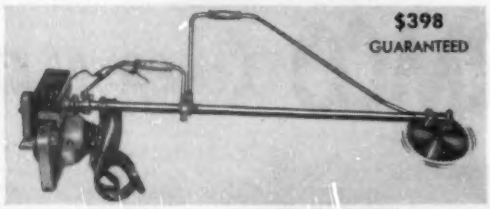
$219
GUARANTEED
Slightly higher in Canada

BRUSHKING model no. 2 IS DESIGNED AND MANUFACTURED BY THE MAKERS OF FAMOUS

CHOICE OF FULL-TIME COMMERCIAL BRUSH-CUTTERS

BRUSHMASTER®

CUTS LABOR COSTS UP TO 83%!



$398
GUARANTEED

TYPICAL BRUSHMASTER USERS

Davey Tree Expert Co.	Pacific Gas and Electric Co.
Socony-Vacuum Oil Co.	Pennsylvania Railroad
U. S. Forest Service	U. S. National Park Service
Anaconda Copper	California State Telephone Co.
U. S. Army Corps of Engineers	U. S. Bureau of Reclamation

BRUSHMASTER SAW, INC.
1784 *Emerald Street — Keene, N. H.*
Also Manufactured and sold in Canada by H. & R. Arms Co., Ltd.
Box 40, Montreal 23, Quebec

FOR RAILROADS, UTILITIES, PIPELINE COMPANIES, LAND CLEARANCE CONTRACTORS . . . all *HEAVY-DUTY USERS.*

First and only brush cutter to make possible mechanization of the commercial brush cutting industry where equipment is needed that will withstand dawn-to-dusk, month-after-month use with rotating crews in all terrains.

Brushmaster succeeds in this field because of its high ratio of speed and endurance to weight — the result of expensive and advanced engineering design. Engine "shock-proofed" by means of a suspension mounting and V belt drive between drive shaft and engine. The special gear box, consisting of 42 precision parts, has several times capacity heretofore obtainable in a unit of its size and weight. Bearing points are strengthened with ball bearings (11 in all). Joints are secured with star washers and lock nuts.

In the commercial field, the reduction in maintenance and repair costs resulting from this added premium construction more than offsets initial cost.

Send for valuable, fully illustrated BRUSHCUTTING BROCHURE . . . it's FREE

LEBANON, OREGON
REPORTS 6 YEARS OF SATISFACTION WITH "Flexibles"

Six years ago, April 7, 1948, the typical American City of Lebanon, Oregon, purchased a set of two "Flexible" Bucket machines. They are still rendering perfect service, and have more than paid for themselves many times over in labor saving costs, more sanitary and more perfectly operating sewers, citizen convenience and putting workers on the dignity of "street level."

Since then, of course, "Flexibles" have been vastly improved and modernized in keeping with our policy of careful study and "follow through" of sewer-cleaning needs and problems . . . as we have for 20 years Both of problems in general and individual city needs in particular.

Seen in the picture are E. C. McClean, Street Superintendent, of Lebanon, and Les Thompson, of Corvallis.

The arrow points to a golf club with a pair of spectacles attached which were unearthed in this particular cleaning operation.

Write for our **FREE** *Catalog*

Flexible SALES CORPORATION

3786 Durango Ave., Los Angeles 34,

(DISTRIBUTORS IN PRINCIPAL CITIES)

AMERICA'S LARGEST LINE OF PIPE CLEANING TOOLS AND EQUIPMENT

Nite-Bright
HIGHWAY SIGNS
"BRIGHT BY DAY — BRILLIANT BY NIGHT"

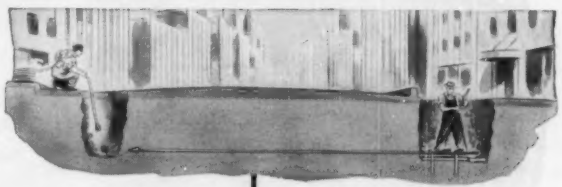
FOR THE BEST IN TRAFFIC SIGNS (heavy type)
ALUMINUM SIGNS REFLECTORIZED WITH SCOTCHLITE • EMBOSSED STEEL BAKED ENAMEL SIGNS
CHANNEL IRON SIGN POSTS IN STOCK
TRAFFIC CONES—IMMEDIATE SHIPMENT

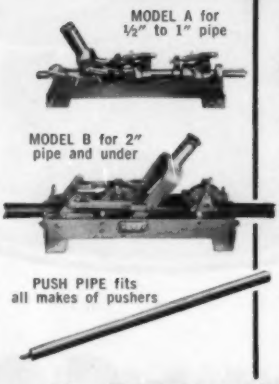
See Our Listing in the 1954 Edition of The Municipal Index

Write Us for Complete Information

NITE-BRIGHT SIGN COMPANY
140 JAMES STREET, BRIDGEPORT 4, CONN.

Trojan Pipe Puller & Pusher
installs or renews pipe under pavement
in half the time required by any other machine!





Exclusive continuous action, which eliminates all resetting of grip, does the trick!

The Trojan combines pushing and pulling operations in one machine —keeps pipe continuously moving —lets you install 40′ services in as little as 20 min.

Model A needs only 5′ trench. One man can easily install the average service. 15 tons of pushing pressure possible.

Model B is reversible in 30 seconds—has 3 speeds for different soils. New dog with individual inserts cuts maintenance.

Write today for full details!

The TROJAN Manufacturing Co.
1113 Race Drive • Troy, Ohio

The test of a century

F.P.G.

This is Lancaster, Pa., County seat in one of the most highly cultivated farming districts in America.

Old print showing southwest view of Lancaster about 100 years ago.

Bettmann Archive

MODERNIZED cast iron

is the test that tells!

LANCASTER installed cast iron water mains 100 years ago . . . and installs them today.

Lancaster, Pa., has grown in 100 years from about 12,000 population to nearly 65,000 — but it has not outgrown the habit of buying cast iron pipe. From four miles of water mains a century ago, the present distribution system has increased to 105 miles of pipe—all of it cast iron pipe. Services have grown from 2,000 to nearly 20,000.

The word "test" means—"*put to the proof*"—according to the dictionary. Well, 60 utilities have put cast iron pipe to the *proof* for a century—a test to end all tests. They installed cast iron water or gas mains 100 years, or more, ago that are still in service. Yes, the test of a century has *proved* beyond question the long life and low cost per service year of cast iron pipe.

Cast iron pipe has been a rugged, long-lived product from the earliest days. Today's *modernized* cast iron pipe, centrifugally cast, is even stronger, tougher, and more uniform in quality. And, where needed and specified, it is centrifugally lined with cement mortar to assure sustained carrying capacity throughout the long life of the pipe.

Cast Iron Pipe Research Association, Thos. F. Wolfe, Managing Director, 122 So. Michigan Ave., Chicago 3.

This cast iron water main laid in 1835 by the Bureau of Water of Lancaster is still functioning after 119 years of service.

CAST Q IRON

The Q-Check stencilled on pipe is the Registered Service Mark of the Cast Iron Pipe Research Association.

pipe FOR MODERN WATER WORKS OPERATION

Here's a familiar sight to swimmers and boaters at beautiful Mission Bay Aquatic Park, San Diego. The park's modern, efficient Life Guard Service patrols the waters in special boats powered by 25 hp Johnson Sea-Horse outboard motors.

Safeguarding 15,000 Fun Seekers

JOHNSON SEA-HORSE 25

25 hp. Speeds over 30 mph. With Mile-Master Fuel System, Gear Shift, Twist-Grip Speed Control.

No ordinary boats for the Life Guard Service of San Diego, Calif. They build their own—to rigid specifications! These craft have to be rugged, yet fast; roomy, yet maneuverable; portable, yet seaworthy.

But special boat design means little without the power to match it. That's provided here by the sensational 25 hp Johnson Sea-Horse. This great motor has the speed, endurance, maneuverability, portability, and DEPENDability that bring out the best in these fine boats. And it is economical—to buy, maintain and service.

Here's how Don B. Vynne, Director of Aquatics of the City of San Diego, puts it: "We can state without reservation that the Johnson '25' is a real serviceable motor, economical in operation and maintenance."

Take stock of *your* marine power needs. See your Johnson Dealer. Look for his name under "Outboard Motors" in your classified phone book.

FREE! Send for big new catalog which describes the 1954 Sea-Horses in detail. Complete specifications. It's yours for the asking. Send a post card to . . .

JOHNSON MOTORS, 6000 Pershing Road, Waukegan, Ill.

In Canada: Manufactured by Johnson Motors, Peterborough

5 GREAT SEA-HORSES FOR 1954

ELECTRIC STARTING SEA-HORSE 25—25 hp. Push-button starting. Deluxe features throughout. **$498.00***

SEA-HORSE 25—25 hp. Ready-Pull starting **$410.00***

SEA-HORSE 10—10 hp. Brilliant acceleration. New. Improved. Outboard motoring's great buy **$297.50***

SEA-HORSE 5½—5½ hp. New "Suspension Drive" sensation. It's *quiet!* **$210.00***

SEA-HORSE 3—3 hp. A 32-lb. *twin!* With amazing Angle-matic Drive. Only **$145.00**

SHIP-MASTER REMOTE CONTROL—Fits Sea-Horse 5½, 10, and both 25's. Instant hook-up. From **$29.50**

OBC certified brake hp at 4000 rpm. Prices f.o.b. factory, subject to change.
**Includes Mile-Master Fuel System.*

Johnson
SEA-HORSE
OUTBOARD MOTORS

DELIVERS WATER CHEAPER!

Ditch test at 150 psi proves joints bottle-tight—wins approval for quick backfilling in heavy traffic areas.

Installing the West Belt feeder main, to increase Atlanta's water supply and boost pressures, meant laying a 48-inch main through densely populated areas. Atlanta engineers—after finding the first 1000 feet of Dresser-Coupled steel pipe absolutely tight—permitted the contractor to backfill as fast as the joints were completed.

More line was laid in less time because lighter weight steel pipe meant easier handling. Long pipe lengths required fewer joints. Use of Dresser Couplings meant faster pipe joining, small crews, easier supervision and less heavy equipment.

The beam strength of steel pipe, plus the resilience of both pipe and couplings, assured Atlanta engineers a rugged, flexible line that will be permanently tight . . . maintenance free.

BE SURE **you get the *best* line at the *best* price. Always put steel pipe and Dresser Couplings in *your* specifications.**

DRESSER® COUPLINGS

Dresser Manufacturing Division, 69 Fisher Ave., Bradford, Pa. (One of the Dresser Industries). Warehouses: 1121 Rothwell St., Houston, Texas; 101 S. Bayshore Highway, South San Francisco, California. Sales Offices: New York, Philadelphia, Chicago, Houston, South San Francisco. In Canada: Toronto, Ont.

RUST-PROOF, NO PAINTING
MAINTENANCE-FREE
FIRST COST IS LAST COST

COST? IN MOST CITIES

Nichols NEVER-STAIN Aluminum Chain Link Fencing costs only about 15% more than ordinary fencing on the complete installation.

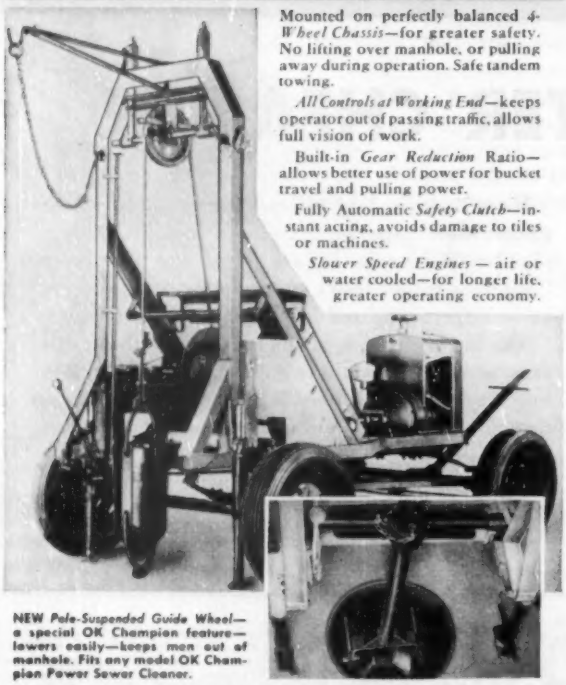
This slight differential is more than offset the first time an ordinary fence is painted—usually within five years.

The ideal fence for . . . **PARKS, GARDENS, POOLS, STORE AND EQUIPMENT AREAS, ETC.**

No other type of fencing in this price range offers all of these advantageous economical features. The savings in painting alone will soon pay for the fence itself. Here is modern fencing that enhances the appearance of any property or site. Write for complete descriptive brochure — address Dept. ACM.

NICHOLS WIRE & ALUMINUM CO.
GENERAL OFFICE & FACTORY — DAVENPORT, IOWA

OK CHAMPION POWER SEWER CLEANERS



Mounted on perfectly balanced *4-Wheel Chassis*—for greater safety. No lifting over manhole, or pulling away during operation. Safe tandem towing.

All Controls at Working End—keeps operator out of passing traffic, allows full vision of work.

Built-in *Gear Reduction* Ratio—allows better use of power for bucket travel and pulling power.

Fully Automatic *Safety Clutch*—instant acting, avoids damage to tiles or machines.

Slower Speed Engines — air or water cooled—for longer life, greater operating economy.

NEW *Pole-Suspended Guide Wheel*—a special OK Champion feature—lowers easily—keeps men out of manhole. Fits any model OK Champion Power Sewer Cleaner.

Write for latest OK Champion Circular
CHAMPION CORPORATION • 4716 Sheffield Ave. • Hammond, Ind.

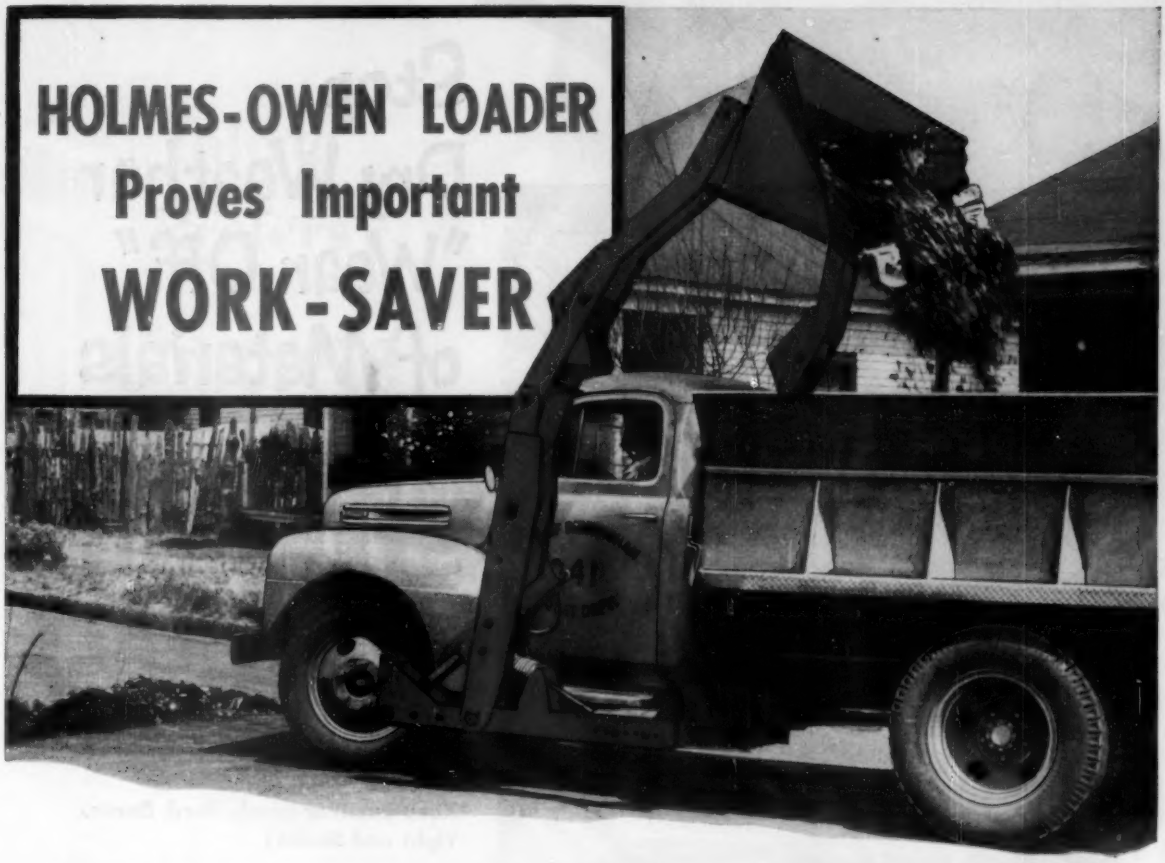
ONLY Geerpres WRINGERS

(1) Have exclusive Interlock Gearing
(2) which multiplies wringer pressure
(3) to squeeze mops drier
(4) and eliminate all splash

Fully guaranteed Available in two styles and three size ranges to meet all mop wringing requirements For further information write to:

GEERPRES WRINGER, INC.
Manufacturers of High Grade Mopping Equipment
P.O. BOX 658 • MUSKEGON, MICHIGAN

HOLMES-OWEN LOADER Proves Important WORK-SAVER



Provides BIG SAVINGS For These CITIES

MORE AND MORE key cities are cutting operating costs the modern, *mechanical* way — through the use of dump trucks equipped with HOLMES-OWEN Loaders. For example, in the maintenance of streets, parks, airports and other public properties, the cost of many loading and cleaning up operations has been reduced as much as 50 per cent.

COLLECTING trash, leaves and broken pavement, handling sand, dirt, ashes and snow — these are a typical few of the many jobs that can be done faster and at lower cost with HOLMES-OWEN Loaders. On every job, *the driver alone* can load, haul and dump — without need of other manpower or more costly equipment. A Holmes unit can be installed on almost any 1½ to 2-ton truck. It lifts ½ yard per bucket, and loads the average truck in 4 minutes. *For full information, see your equipment dealer or write us for literature and prices.*

Partial List of USERS:

- ★ Asheville, N. C.
- ★ Bartow, Fla.
- ★ Chicago, Ill.
- ★ Dayton, Ohio
- ★ Kansas City, Mo.
- ★ Monahans, Texas
- ★ Philadelphia, Pa.
- ★ Syracuse, N. Y.
- ★ Washington, D. C.

Manufactured by

ERNEST HOLMES COMPANY Chattanooga, Tenn.

Stop Dry Weather "Wear Off" of Materials with STERLING ROCK SALT

Keep Summer Roads Hard, Dense, Tight and Stable!

Proper stabilization with STERLING ROCK SALT and clay gives road wearing surfaces the flexibility to adapt themselves to the weather—hot or cold, wet or dry. For rock salt is Nature's own soil stabilizer.

In hot, dry weather, STERLING ROCK SALT rises, crystallizes—and firmly "anchors" the clays and fines at the wearing surface. That's why, even after prolonged dry spells, a Sterling stabilized road will show a tough, firm surface.

So don't let a lot of your work and the taxpayer's money go up in dust this summer. Prevent the loss of surface materials—and the extra repair and maintenance that follows in the wake of summer dust clouds on unstabilized roads.

INDUSTRIAL DIVISION, DEPT. AC-6
INTERNATIONAL SALT COMPANY, INC., SCRANTON 2, PA.

☐ Please send Road Stabilization literature.
☐ Please have representative call.

Name_____

Company_____

Street_____

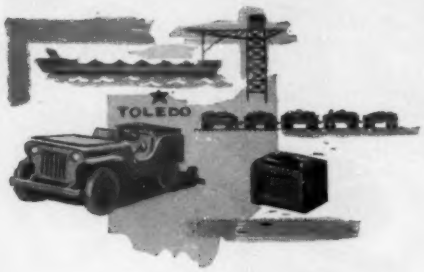
City_____ Zone_____ State_____

Plan now to stabilize with STERLING ROCK SALT. For information on up-to-the-minute methods—old roadbeds or new construction—fill out and mail the coupon at left.

INTERNATIONAL SALT CO., INC.
INDUSTRIAL DIVISION
Scranton, Pennsylvania

STERLING ROCK SALT
"Nature's Own Soil Stabilizer"

Toledo Prefers Concrete Pressure Pipe



Toledo engineers prefer concrete pressure pipe for the city's water supply mains. In 1948 an 8,600-foot installation, known as the Bancroft Street Crosstown Main, was completed. Since then 24", 36", 48" and 72" concrete pressure pipe has been used in major additions to the city's water supply system. Just recently contracts have been signed by Lucas County authorities and work is in progress on additional projects in the Toledo area, involving 16" and 24" pipe.

There are a number of reasons for Toledo's increasing use of concrete pressure pipe. Sustained high-carrying capacity and long life are two of the most important. Another is low maintenance cost. The original cost is also low and installation is accomplished quickly and easily.

Talk to Toledo engineers when you plan your next water line. You'll learn why they like concrete pressure pipe—not only for transmission lines, but for city distribution mains as well.

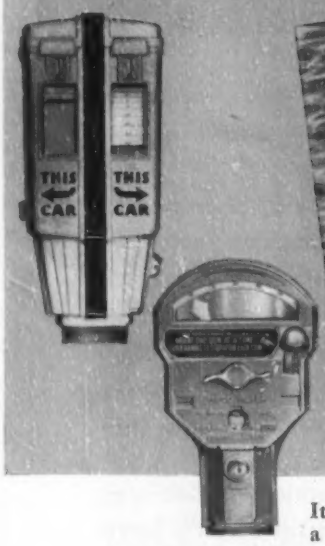
Member companies manufacture concrete pressure pipe in accordance with nationally recognized specifications

Concrete PRESSURE Pipe

AMERICAN CONCRETE PRESSURE PIPE ASSOCIATION
228 North LaSalle Street
Chicago 1, Illinois

WATER FOR GENERATIONS TO COME

HOW'S THIS FOR RUGGEDNESS?



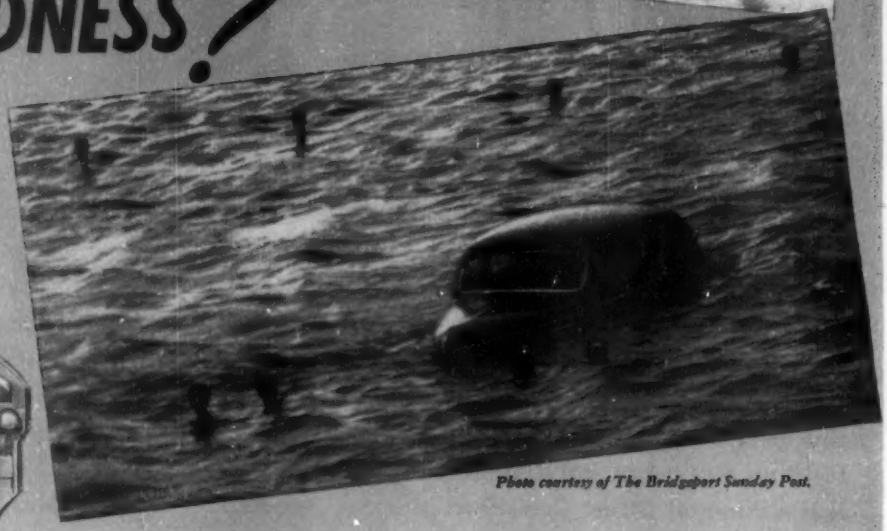


Photo courtesy of The Bridgeport Sunday Post.

It takes more than a flood or snow and ice to knock out a MI-CO Parking Meter.

In Chardon, Ohio, a blizzard accompanied by sub-zero temperature, completely snowed under 110 MI-COs but failed to put a single meter out of commission. When the snow was cleared away the meters were back in business immediately, and working perfectly. "No difficulty was experienced, not even in opening the coin collection door," says John R. Bohl, Chardon's Chief of Police.

Last fall, in Bridgeport, Connecticut, the flood completely inundated many MI-COs, but failed to put any of them out of order. When the waters receded the meters were cleaned and ready to do business.

MI-COs are well known for dependable operation under the most adverse conditions. Their ability to "take it" and keep operating makes it possible to pile up enviable records for low maintenance, and consistently high earnings—not for just a year or two, but up to ten years and more.

MI-CO offers two types of meters, the highly regarded Manual, and the original, time-tested Twin Automatic. Both are built to give dependable, low-cost service. You may be sure one of these meters will meet all your requirements. Write for complete information.

MI-CO METERS, 231 Court St., Covington, Kentucky

Division of The Michaels Art Bronze Co., Inc.

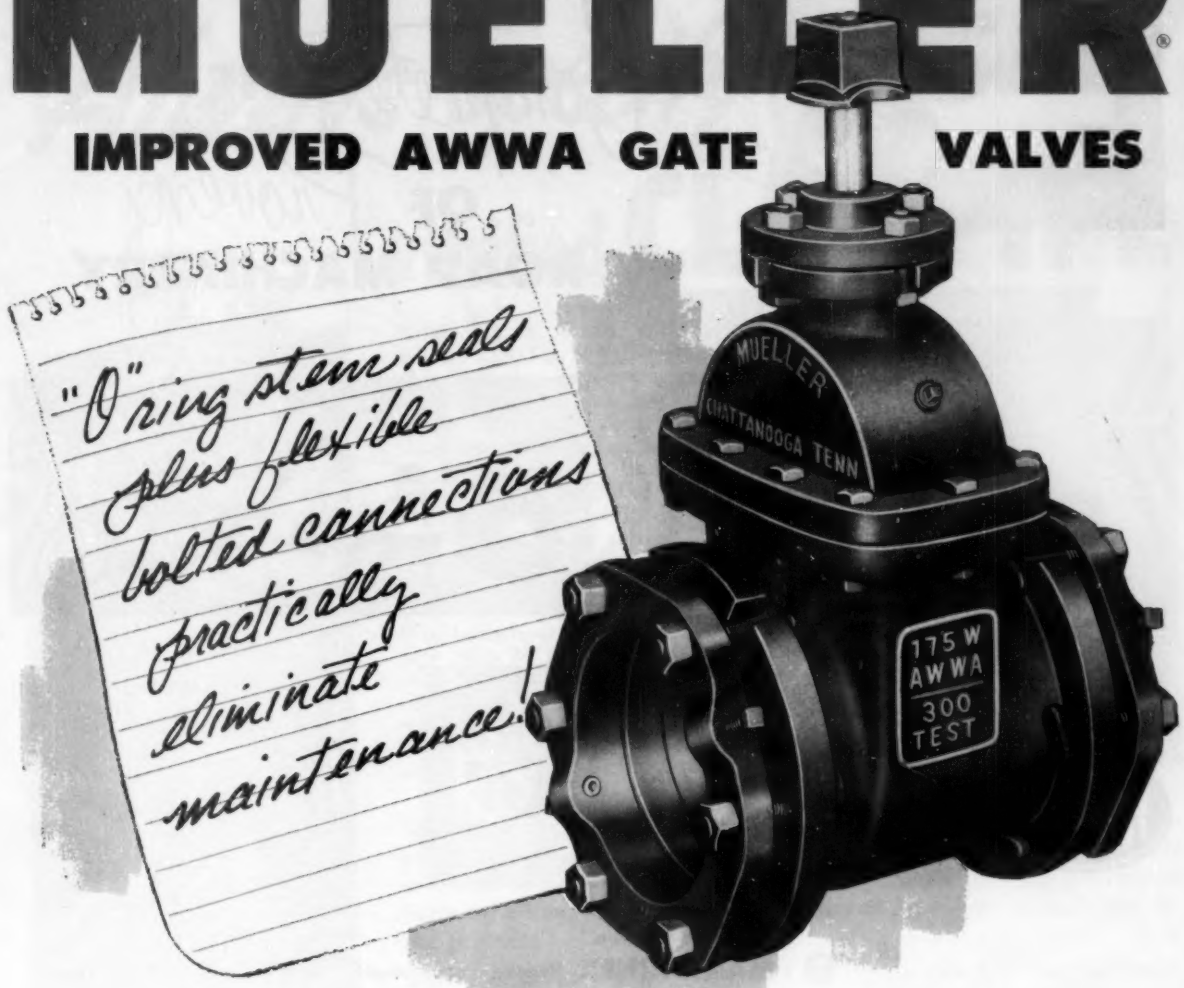
MICHAELS PRODUCTS:

Store Fronts
Lettering
Check Desks
Lamp Standards
Marquees
Tablets and Signs
Name Plates
Astragals
Railings
Grilles and Wickets
Kick and Push Plates
Push Bars
Thresholds
MI-CO Parking Meters
Museum Trophy Cases
Bronze and Aluminum Doors
Bank Screens and Partitions

Bronze and Aluminum Plaques

MUELLER®

IMPROVED AWWA GATE VALVES



Maintenance costs are reduced to a minimum when using Mueller Gate Valves featuring "O" ring stem seals and mechanical joints.

Two "O" rings, replacing conventional stem packing, completely eliminate repacking or retightening and assure a dependable, lasting seal. "O" rings have proven highly effective as sealing devices and do not deteriorate. The space between the "O" rings is filled with a special lubricant to provide permanent lubrication of the stem thrust collar. Exceed AWWA specifications.

Permanent, leakproof joints may be quickly made with just a wrench even in the worst weather. No calking is necessary! The resulting bolted connection is flexible enough to permit deflection in any direction, expansion or contraction, and to absorb vibration — all without leakage! Suitable end gaskets allow a valve of nominal size to be installed on any AWWA class of cast iron pipe.

All Mueller Gate Valves feature Mueller's exclusive "four point contact" disc wedging mechanism and are fully bronze mounted. On special orders, valves will be furnished with all-bronze disc and disc wedging mechanism.

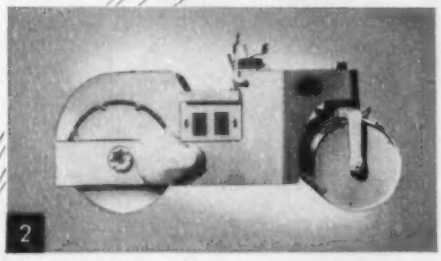
For additional information, consult your Mueller Water Works Catalog W-96 or your Mueller representative.

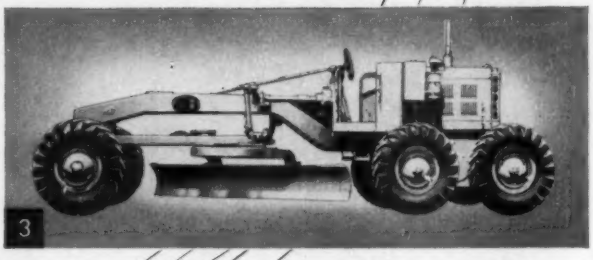
MUELLER CO.

Dependable Since 1857

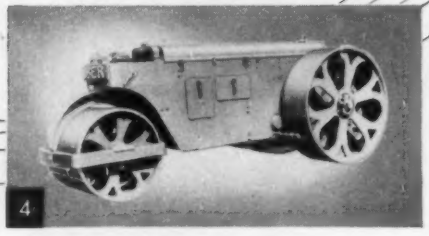
MAIN OFFICE & FACTORY DECATUR, ILLINOIS

A Complete LINE OF Proven ROAD MACHINERY





HUBER*



❶ **MAINTAINER**—Hydraulic attachments convert it to a bulldozer, grader, berm leveler, road planer, patch roller, side dozer, snow plow, broom, highway mower or lift-loader. Costs only ONE-THIRD the price of a big motor grader.

❷ **TANDEM ROLLER**—Designed for finishing work. Guide roll assembly will not "scuff"; unusually close curb clearance. It offers efficiency, economy of operation, long-life and mechanical perfection.

❸ **MOTOR GRADER**—Fast-acting Hydro-Mechanical controls. The Huber Motor Grader offers a blade position for every job, and reserve strength for the most difficult jobs.

❹ **3-WHEEL ROLLER**—For general-purpose, finishing and compaction needs. Rear rolls, matched for weight, balance and circumference, give perfect compaction. Huber front end suspension prevents lurching.

* *Known the world over for dependable, cost-saving construction and maintenance equipment.*

HUBER MANUFACTURING CO. • Marion, Ohio, U. S. A.
Manufacturers of Huber Maintainers, Graders and Complete Line of Rollers

HUBER

When ground water infiltration is a problem...

Always specify vitrified CLAY PIPE

MURRAY CITY, UTAH, adds another 22,975 ft. of Vitrified Clay Pipe to its sewerage system to serve a new housing area. Because of the high water table in some sections of the project, the trench bottom had to be boxed in and pumped dry while the pipe was laid three sections at a time. Officials directing various phases of the project include City Engineer D. H. Wood, Assistant City Engineer John N. Neff, Installation Foreman John Carolo, and Pipe Foreman Ken Farrell. General Contractor is The Statewide Plumbing and Heating Co.

Wherever the water table is high, sanitary engineers experienced in handling infiltration problems choose Vitrified Clay Pipe. The wide selection of factory-made joints or in-the-trench jointing techniques permit the kind of installation that suits each project . . . each trenching problem . . . each locale.

And once in the ground, Vitrified Clay Pipe is *down to stay.* It is confidently guaranteed for 50 years.

Officials at Murray City specified Clay Pipe even before they submitted the bond issue to the voters—smart planning that assures the community of trouble-free service long after the bonds mature. For sewers that *must* be permanent, always specify, buy, and install Vitrified Clay Pipe. There's no safe substitute for the *one* pipe that never wears out.

Vitrified

CLAY

CLAY PIPE NEVER WEARS OUT!

PIPE

C-454-2

NATIONAL CLAY PIPE MANUFACTURERS, INC.

1520 18th St. N.W., Washington 6, D. C.

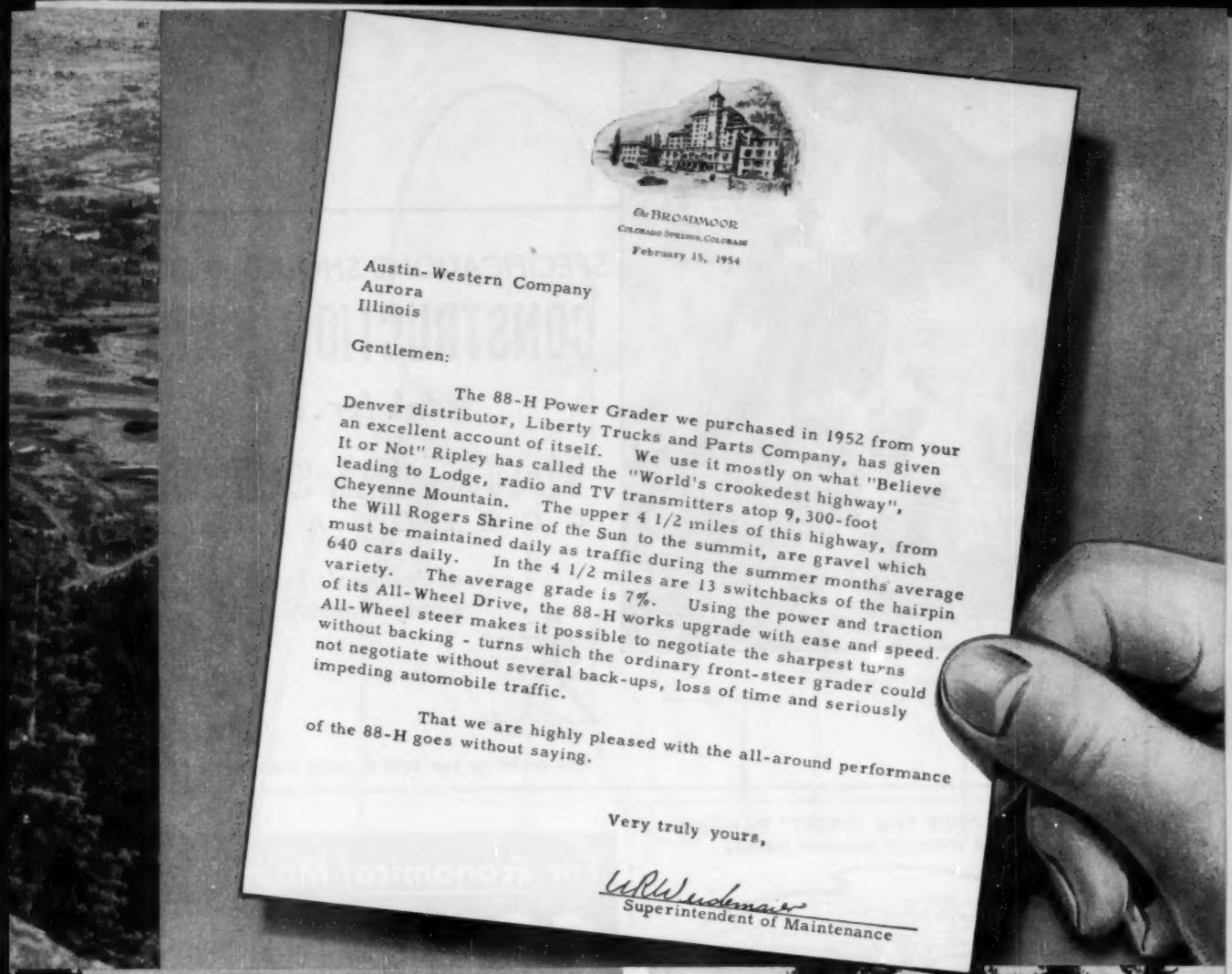
206 Connally Bldg., Atlanta 3, Ga.
100 N. LaSalle St., Rm. 2100, Chicago 2, Ill.
703 Ninth & Hill Bldg., Los Angeles 15, Calif.
311 High Long Bldg., 5 E. Long St., Columbus 15, Ohio

Lying directly at the foot of towering Cheyenne Mountain, the Broadmoor with its private golf course, lake, ice palace and rodeo stadium is one of the famous resort hotels of the world.

THE GRADER THAT GOES MOUNTAIN CLIMBING

Grades too steep and curves too sharp for the ordinary rear drive, front steer motor grader are all in a day's work for the Austin-Western Power Grader, thanks to the greatly increased traction and power-at-the-blade of its exclusive All-Wheel Drive, and to the unequalled "turnability" of its exclusive All-Wheel Steer.

To the average owner, not faced with the problem of climbing mountains, ability to *work successfully upgrade* means corresponding ability to *move more material on the level* . . . ability to negotiate mountain curves spells maneuverability that saves time on every job.



The BROADMOOR
COLORADO SPRINGS, COLORADO

February 15, 1954

Austin-Western Company
Aurora
Illinois

Gentlemen:

The 88-H Power Grader we purchased in 1952 from your Denver distributor, Liberty Trucks and Parts Company, has given an excellent account of itself. We use it mostly on what "Believe It or Not" Ripley has called the "World's crookedest highway", leading to Lodge, radio and TV transmitters atop 9,300-foot Cheyenne Mountain. The upper 4 1/2 miles of this highway, from the Will Rogers Shrine of the Sun to the summit, are gravel which must be maintained daily as traffic during the summer months average 640 cars daily. In the 4 1/2 miles are 13 switchbacks of the hairpin variety. The average grade is 7%. Using the power and traction of its All-Wheel Drive, the 88-H works upgrade with ease and speed. All-Wheel steer makes it possible to negotiate the sharpest turns without backing - turns which the ordinary front-steer grader could not negotiate without several back-ups, loss of time and seriously impeding automobile traffic.

That we are highly pleased with the all-around performance of the 88-H goes without saying.

Very truly yours,

W. R. Wiedeman
Superintendent of Maintenance

Entering the hairpin switchback shown in the long shot at the left, the "88-H" steers front and rear wheels in opposite directions to complete *without backing* a turn that would require several time-consuming backups with a front steer grader of comparable size.

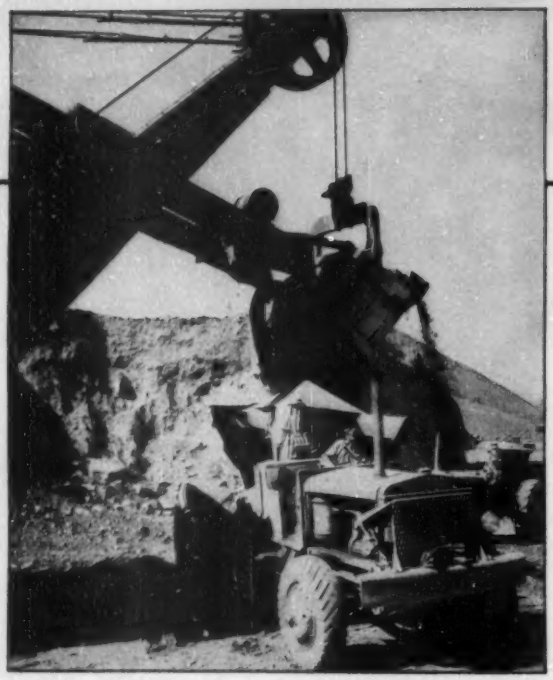
Heavy traffic on the "world's crookedest highway" makes it essential that the gravel surface be maintained in perfect condition every hour of the day. Like all Austin-Western Power Graders, the "88-H" has ample traction for work uphill as well as downhill.

Austin-Western

Power Graders · Motor Sweepers
Road Rollers · Hydraulic Cranes

BALDWIN BLH LIMA-HAMILTON
Construction Equipment Division

Manufactured by
AUSTIN-WESTERN COMPANY
Subsidiary of Baldwin-Lima-Hamilton Corporation
AURORA, ILLINOIS, U.S.A.



SPECIFICATIONS SHOULD REQUIRE

CONSTRUCTION BONDS

Ask for . . .

NATIONAL SURETY CORPORATION

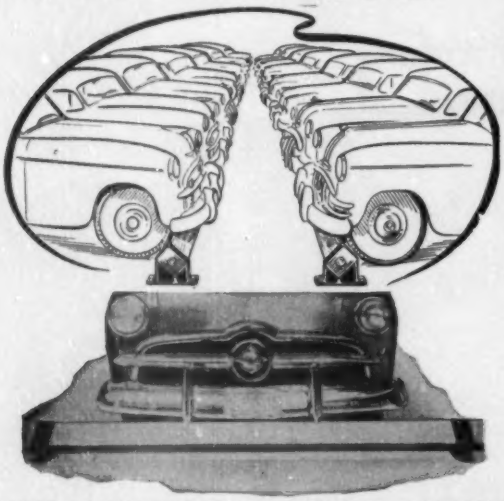
NEW YORK

one of America's foremost surety companies

INVISIBLE ARMOR

This symbol on your bond or policy guarantees satisfaction.

IDEAL FOR "OFF THE STREET" PARKING
WITH OR WITHOUT PARKING METERS



SALIENT FEATURES OF HAR-BAR BARRIERS

1. High enough to stop your car.
2. Low enough to clear your bumper guards.
3. Barrier is above ground — no drainage problem.
4. Barrier is above ground — no rotting of wood.
5. Automatically spaces your cars.
6. Follows contour of your ground.
7. Easily installed — just line up and drive the anchor pins.
8. Easily moved — just pull the anchor pins.
9. Easy to clean under.
10. Easy to maintain.
11. Installed on any kind of surface — black top, cement, ma adam, gravel or cinders.
12. It really dresses up your parking lot.
13. You always stop against your tire — no shock.
14. All Castings are aluminum — no rusting.

Send us a plot plan of your parking lot—we do the engineering free.

HARRIS - BARRIER INC. 5407 N. PENNSYLVANIA STREET INDIANAPOLIS 5 - INDIANA

For *Economical* Maintenance

COLE ELEVATED TANKS

• Design plays an important part in tank maintenance. Experienced engineers design Cole tanks for easy access and minimum maintenance costs, as well as for permanence, safety, and dependability. Send us your inquiries for tanks 5,000 to 2,000,000 gallons—stating capacity, height to bottom, and location.

Write for the latest Cole catalog—"TANK TALK"

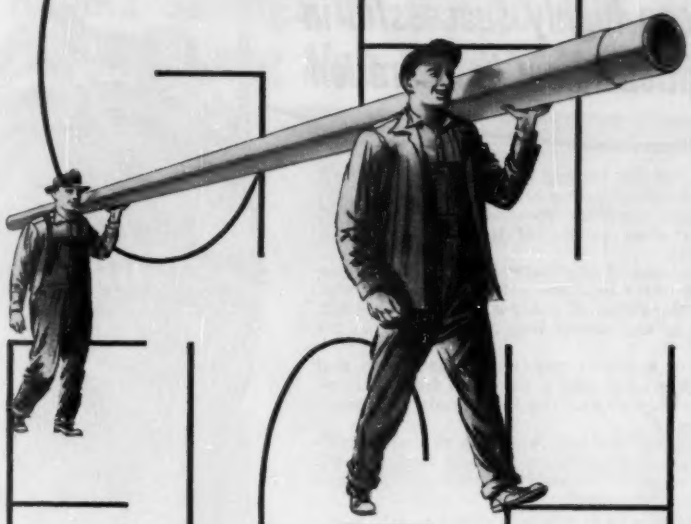
Established 1854

R. D. COLE MFG. CO.

NEWNAN, GEORGIA

ELEVATED TANKS • VESSELS • CYLINDERS
TOWERS • BINS • STANDPIPES

LIGHT WEIGHT



"CENTURY"® PIPE

QUALITIES THAT MAKE "CENTURY" PIPE ECONOMICAL, TROUBLE-FREE, LONG-LIVED

1. NON-TUBERCULATING
2. NON-CORROSIVE
3. EXCEPTIONALLY STRONG
4. DURABLE
5. IMMUNE TO ELECTROLYSIS
6. TIGHT JOINTS
7. SMOOTH BORE
8. EASILY, QUICKLY LAID
9. LIGHT WEIGHT
10. LOW COST

except for the very largest diameters, can be handled easily without the use of cranes or other machinery. In many cases, two men can pass a length to the men in the trench or lower it by ropes. Thus the light weight of this modern asbestos-cement pipe effects many savings in labor and transportation costs, and materially speeds completion of the line.

Consider the many other distinct advantages of "Century" pipe and you'll see why more and more thrifty towns are choosing it—why it's the wise choice for your community, too!

Write for further information now.

KEASBEY & MATTISON COMPANY • AMBLER • PENNSYLVANIA

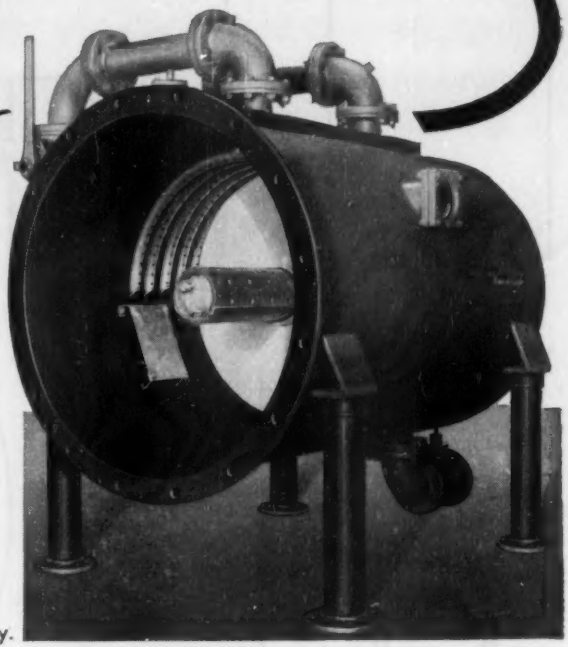
K&M best in asbestos ®

Nature made asbestos . . . Keasbey & Mattison has made it serve mankind since 1873

A new trend in municipal water filtration –

The SPARKLER DIATOMITE FILTER MODEL SCJ

has been highly successful in installations now in operation



Reduced operating cost due to long filtering cycles and fast backwash cleaning, together with a remarkably low bacteria count requiring a minimum of chlorination, are features that make this new type filter worthy of the attention of all waterworks engineers.

Practically any volume of city water can be filtered economically in the Sparkler SCJ filter. Single units capable of handling 5,000,000 gallons of water a day are available. Multiple units can be engineered into a system for larger requirements.

Less than 0.2% of water is required to backwash and clean the largest filter units and a complete fresh precoat of diatomite can be applied and the filter ready to resume operation in 15 minutes.

Operators can be easily trained, no highly skilled specialized personnel is required to insure efficient performance.

Write for plans and prices on your requirements. Address Dan Baldwin for personal service.

SPARKLER MANUFACTURING CO.

Home office and plant, Mundelein, Ill.

EUROPEAN PLANT
Prinsengracht 876
Amsterdam, Holland

CANADIAN PLANT
Galt, Ontario

Manufacturers of industrial filters for over a quarter of a century.

Star Performers on Important Duties

Aurora Non-Clog Pumps, both Vertical and Horizontal have won high favor

— for industrial by-products, semi-solids, wastes, municipal sewage plants, lift stations, buildings and all duties involving the handling of heavy liquids and liquids containing solids.

Type KGG Aurora Horizontal Non-Clog Pump

Write for BULLETIN 121

Write TODAY for CONDENSED CATALOG "M"

DISTRIBUTORS IN PRINCIPAL CITIES

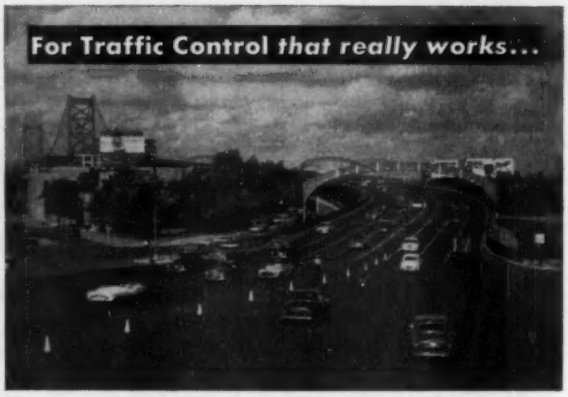
AURORA Always PUMPS

AURORA PUMP COMPANY

DIVISION OF THE NEW YORK AIR BRAKE COMPANY

66 Loucks St., AURORA, ILLINOIS

For Traffic Control *that really works...*



Use The TRAFFIC CONTROL *DENOMINATOR!*

Effective Traffic Control begins with a careful survey. How many? Which direction? What type? Accuracy in answering such questions is of vital importance. For the simplest and most effective method of analyzing traffic conditions accurately hundreds of municipalities now rely on The TRAFFIC CONTROL *DENOMINATOR!* Write to Dept. AC-10.

THE *Denominator Company*, INC.
261 BROADWAY, NEW YORK 7, N. Y.

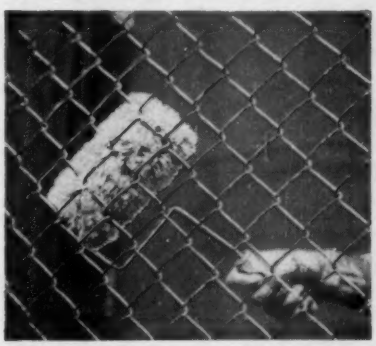
Manufacturers of Tabulating Machines for 40 years

Cut wire fence re-coating costs!

Users Report Savings of 30% to 40% With Rust-Oleum Extra-Long Nap Lamb's Wool Roller!

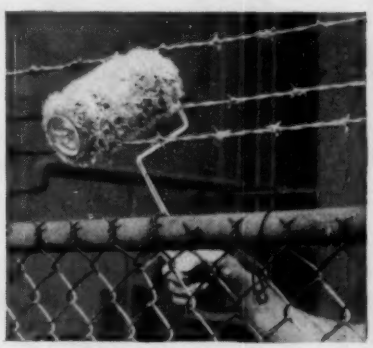
Special roller glides easily over wire sections. (Rusted sections have already been primed with Rust-Oleum 769 Damp-Proof Red Primer to Stop Rust.) Finish coat is Rust-Oleum 470 R.M. Aluminum.

A *new, exclusive, different-type* roller! Greater diameter, specially selected skins, extra-long Lamb's Wool – all combine to give you more coverage faster and easier in the new Rust-Oleum Roller-Coating System.



Close-up shows how Extra-Long Nap Wool reaches around to coat approximately 70% of other side of fence at same time. Rust-Oleum's *exclusive* penetrating qualities saturate cross wire sections for desired mil thickness.

Man follows with "dry" roller on opposite side of fence to catch and use surplus "tears" and quickly coat remaining 30% of wire sections.



Even barbed wire sections can be roller-coated in one easy pass. 99% of the material is used on the fence – *not* on the workers, *not* on the ground.

On long distances of fencing, a 5 man production "team" can achieve even greater savings. The first man wirebrushes the surface to remove dirt, dust, rust scale, etc. The second man applies Rust-Oleum liberally by roller, coating the wire sections and barbed wire. The third man follows on the opposite side of the fence with a "dry" roller to catch and use the surplus. The fourth and fifth men work on opposite sides of the fence, brushing the pipe framework and the barbed wire arms. See how this new Rust-Oleum system can save you money. Attach coupon to your letterhead, mail *today*.

RUST-OLEUM®

STOPS RUST!

ATTACH TO YOUR LETTERHEAD – MAIL TODAY!

RUST-OLEUM CORPORATION
2511 Oakton Street, Evanston, Illinois

Please show us how your new Extra-Long Nap Lamb's Wool Roller will cut our wire fence re-coating costs. Include prices, complete literature about Rust-Oleum and nearest source of supply. We have approximately_____ yards of wire fencing.

FIRST

. . . and Best!

TODD INSECTICIDAL FOG APPLICATOR

TIFA

Successfully Used for over 9 Years in Community Fly and Mosquito Programs

Tifa was first in the field of fog applicators. Tests have proved it best in the field for space control around the community . . . on the dump, over pools, in suburbs, everywhere insects swarm!

This amazing machine discharges newly-developed insecticides as well as the older types in a true, clean fog which spreads quickly and permeates the deepest crevices. This ability means a better insect control program for your community. Put Tifa to work for you!

Efficiency Features

Uses insecticides in solutions, emulsions or suspensions.

Produces penetrating fog, dry or wet as you wish.

Droplet Control ranges from ½ to 200 Microns.

CARRYING
Underwriters' Listing Seal

Write for illustrated folder with full details and official comments.

COMBUSTION EQUIPMENT DIVISION
TODD SHIPYARDS CORPORATION
81-16 45th Avenue, Elmhurst 73, New York

New O'Brien SEWERKING, equipped with solid rods.

TWO MACHINES IN ONE!

Now—save money on sewer-cleaning equipment!

Here's the new O'Brien SEWERKING that can be used with flexible steel cable or solid rods! With this new machine, you can handle more sewer jobs—without paying for expensive, big machines. O'Brien SEWERKING is easy to operate; has a powerful, reversible electric motor (or can be used with gasoline engine) that turns cutting knives and cable to quickly clear line of roots, mud, etc. Cleans lines up to 14" in diameter, 500 feet long. Safe operation—no hand feeding of cable necessary.

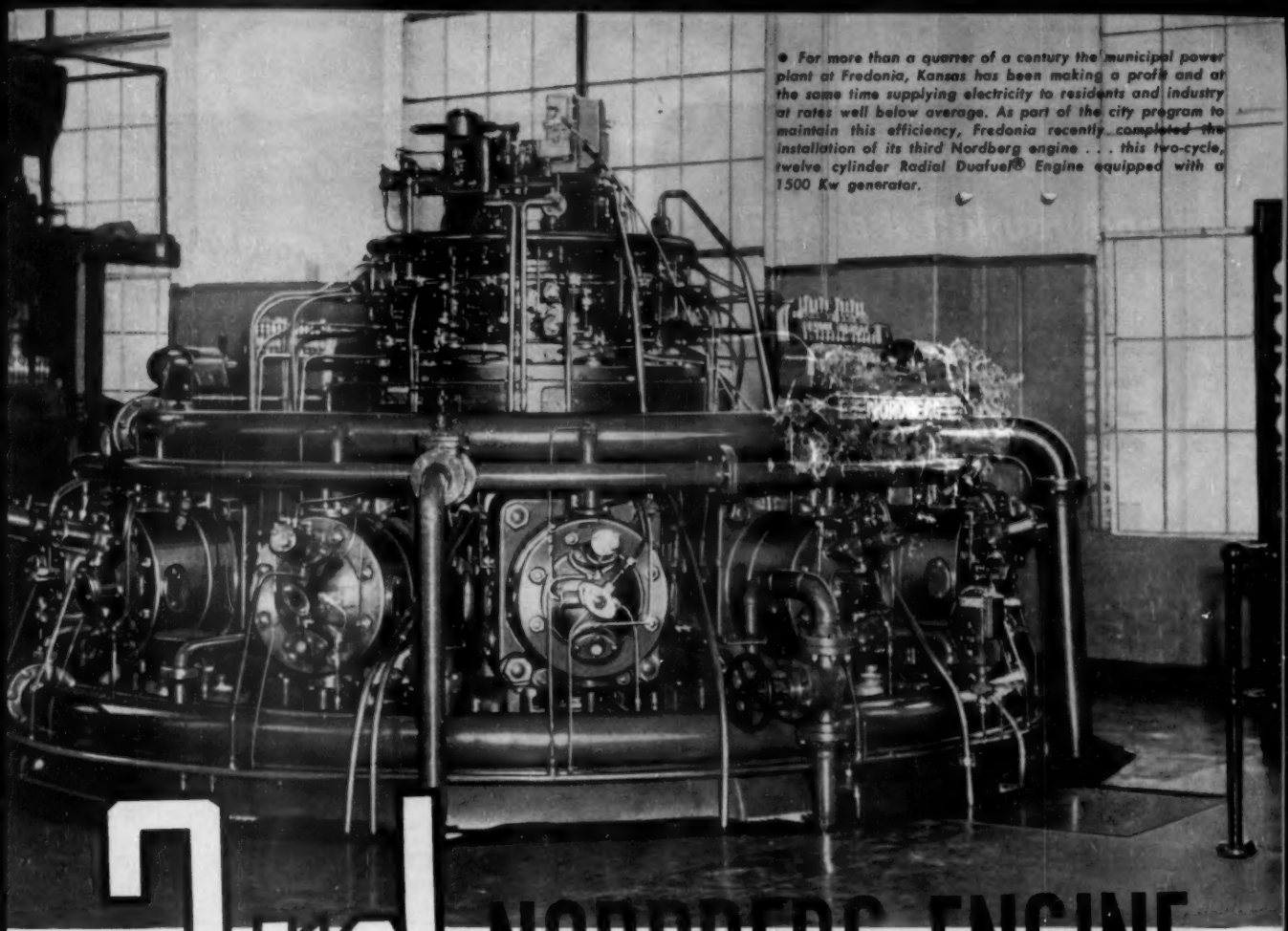
WRITE TODAY FOR FREE BOOKLET

O'BRIEN Manufacturing Company
Dept. AC-6
5663 Northwest Highway
Chicago 30, Illinois

WORTHINGTON-GAMON

LIQUID METERS
All Sizes All Types

WORTHINGTON-GAMON METER DIVISION
Worthington Corp.
296 South Street Newark 5, New Jersey



• For more than a quarter of a century the municipal power plant at Fredonia, Kansas has been making a profit and at the same time supplying electricity to residents and industry at rates well below average. As part of the city program to maintain this efficiency, Fredonia recently completed the installation of its third Nordberg engine . . . this two-cycle, twelve cylinder Radial Duafuel® Engine equipped with a 1500 Kw generator.

3rd NORDBERG ENGINE for Fredonia, Kansas

"BOX SCORE"	
1931	Fredonia installs 600 Kw Nordberg two-cycle in-line Diesel engine.
1948	Second Nordberg engine installed . . . a 900 Kw, six-cylinder four-cycle Duafuel® unit.
1953	Third Nordberg installed . . . a two-cycle twelve-cylinder Radial Duafuel® engine direct-connected to a 1500 Kw generator.

With the successful and economical operation of their first two Nordberg engines, it was natural that Fredonia again turned to Nordberg for an economical solution to their latest power expansion problem. It is interesting to note that the Radial engine was chosen primarily because it could be easily installed in a limited space, without increasing plant size.

Operating very satisfactorily on natural gas and pilot fuel, the Nordberg Radial Duafuel® engine has been on the line since November, 1953. It is instantly convertible to gas or oil fuel at the movement of a single lever.

Looking for dependable, economical main or stand-by power? Then consider Nordberg . . . builders of America's largest heavy duty engine line . . . 10 to over 10,000 hp.
Nordberg Mfg. Co., Milwaukee, Wisconsin.

NORDBERG

DIESEL • DUAFUEL® AND SPARK-FIRED GAS ENGINES

P354

Kill the ROOTS and you kill the WEEDS!

DOLGE WEED-KILLERS, sprayed in economical solution, *work down to the roots* —the ONLY way of destroying noxious plant life.

NEW DOLGE N P WEED-KILLER

—Can be used with confidence by anyone. Kills **all** vegetation by contact and translocation to weed roots; sterilizes the soil. RESULTS APPARENT IN A FEW DAYS. Spray, sprinkle or **use as dry powder**—"built-in" wetting and spreading agent works **fast** by wetting waxy surfaces of plants and inducing penetration into leaves, stems, roots. Non-inflammable, non-volatile, non-corrosive.

DOLGE SS WEED-KILLER

—Where NO vegetation is desired . . . on walks, drives, areas close to buildings. Tends to sterilize the soil so that wind-blown seeds cannot germinate.

DOLGE E.W.T. 40-2, 4-D *SELECTIVE* WEED-KILLER

—**Will not harm good lawn grasses,** but kills dandelions, plaintain and other broad-leaved noxious plants in turf.

Write for Dolge booklet on chemical weed control, and see your DOLGE SERVICE MAN for practical weed control advice.

Ask about SOLEXTO
Kills grubs of turf insects —one application protects lawns for years!

Dependable DOLGE
WESTPORT, CONNECTICUT

Big Beam AUTOMATIC EMERGENCY LIGHTS

GUARD AGAINST THE HAZARDS OF SUDDEN BLACKOUTS

Big Beam Model 2ATW with storage battery and built-in charger that keeps battery fully charged at all times. Variety of models to choose from.

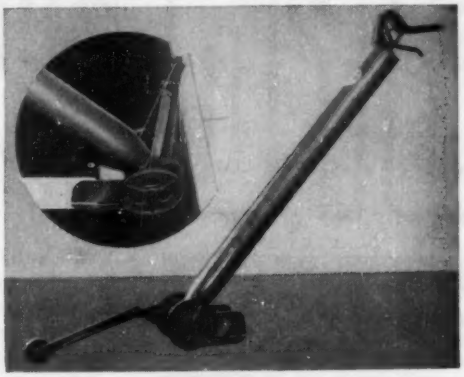
Sudden blackouts breed confusion, panic, property damage, bodily injury — even loss of life. You can have completely dependable protection against sudden blackouts by installing Big Beam automatic emergency lights. (Plug into any convenient lighting outlet.) Then whenever regular lights fail, your Big Beam will provide hours of bright, safe illumination.

Big Beam PORTABLE ELECTRIC HAND LAMPS

Model No. 211 1500-Foot Beam | Model No. 166 with SEALED BEAM Bulb | Model No. 408F Flare and Lantern

Write for Complete Information —

U-C LITE MFG. CO., 1063 W. Hubbard St., Chicago 22, Ill.
IN CANADA: Bernard Marks & Co. Ltd., 459 Church St., Toronto 5, Ont.



NEW FLORLINE

Street, Safety, Parking Lines

At Walking Speed. Now With Third Wheel Guide for Fast Straighter Lines At No Extra Cost! **$97.50** F.O.B. Detroit

Communities coast to coast are cutting maintenance costs of traffic and parking lines with FLORLINE. The new third wheel, 18" forward of carriage, keeps machine "in line" long before marking begins. Guide wheel arm automatically folds back at curb, lets machine mark right up to barriers

1 man, 1 hand operation. No attachments. Gravity feed. Makes curved, straight, continuous or skip lines, 2, 3, or 4" wide with interchangeable carriages. Holds 1½ gals. paint, lacquer, whitewash. Cannot spill. Portable, easy to clean and store. FULLY GUARANTEED.

H. C. SWEET CO.
24396 West 7 Mile Rd. Detroit 19, Mich.

DEARBORN INDUSTRIAL LOADER for the FORD TRACTOR

Here's a steady profit producer—a great manpower saver —on many dirt and material moving jobs. The Dearborn Industrial Loader lifts and dumps 9 cu. ft. of material at any height from ground level up to 10½ feet. Two hydraulic cylinders control and stabilize bucket action. The separate hydraulic pump that powers the loader is mounted on the tractor, thus freeing the Ford Tractor's Hydraulic System to operate blades, scoops and other rear-attached tools, even during loader operation.

And the capacity, reach and speed of lift, economy and over-all performance of the Dearborn Industrial Loader are equal to or exceed those of any other loader designed for use with the Ford Tractor.

Yet, with all this, the Dearborn Industrial Loader's low purchase price—low operating cost—make it a profit producer on a wide range of jobs. See it soon at your nearby Ford Tractor Dealer's!

DEARBORN ANGLE DOZER

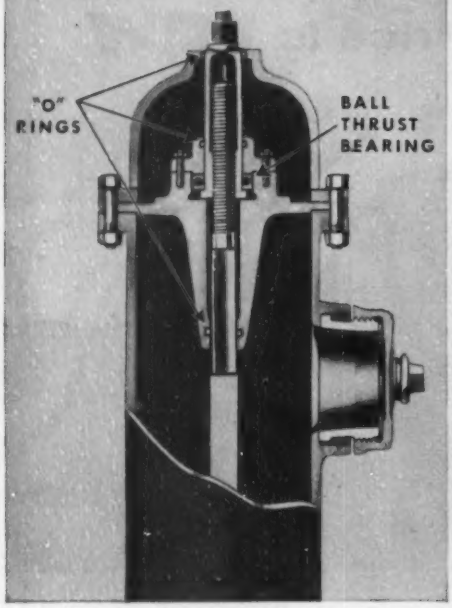
Extends Loader's Uses!

This sturdy six-foot blade handles back-filling, grading, windrowing and clean-up jobs in a hurry. Angle and pitch are easily adjustable . . . blade lifts and lowers hydraulically. Attaches to Dearborn Industrial Loader with low cost adapter unit.

TRACTOR AND IMPLEMENT DIVISION, Ford Motor Company, Birmingham, Mich.

Ford TRACTOR

TRADE
DARLING
MARK



A. W. Grathwol, manager of the Sandusky, Ohio, Water Distribution Department, checking static water pressure on a newly installed Darling B-50-B hydrant.

Word is getting around about DARLING'S NEW B-50-B FIRE HYDRANT

WATER distribution men like A. W. Grathwol of the Sandusky, Ohio, Water Distribution Department, are spreading the good news about the new patented Darling B-50-B fire hydrant. It rates as the most important fire hydrant advance in 50 years.

Here are reasons why . . .

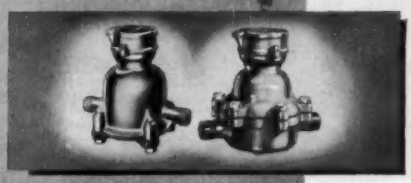
1. The "O" ring seals eliminate need for a stuffing box. Darling's B-50-B is a packless, *dry-top* hydrant that saves service time and trouble. It does away with bothersome packing gland adjustment and maintenance, assures constant lubrication of the operating threads *and prevents water from reaching the operating threads.*

2. The Darling B-50-B is a *ball-bearing* operated hydrant. Opening and closing takes less than half the usual wrench torque.

And you also get another long-time advantage of Darling hydrants . . . all inside working parts, including the main valve seat and drain valve seats, can be removed through the top *by one man* for on-the-spot inspection and maintenance. Write for Bulletin No. 5007 before you decide on any hydrant. Address . . .

DARLING VALVE & MANUFACTURING CO.
Williamsport 10, Pa.
Manufactured in Canada by The Canada Valve & Hydrant Co., Ltd., Brantford 7, Ontario

WATER is vital...



BADGER meters conserve it!

More than 25 million acres of crops must be irrigated to provide America's food supply. The Badger water meters used in thousands of communities throughout the nation help save water for this vital need . . . measure water accurately for homes and industry . . . provide a precise check on water usage and waste. With their outstanding record of performance, Badger meters have won the praise of waterworks men everywhere... are known as the meters that save water, work, money!

BADGER WATER METERS

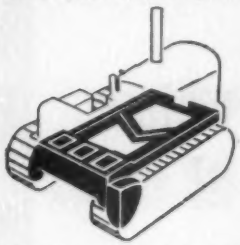
BADGER METER MFG. CO., Milwaukee 45, Wisconsin

"Measuring the water of the world"

HERE'S TRACTOR VALUE YOU CAN MEASURE

IN yards PER DAY... IN years OF SERVICE

The Allis-Chalmers HD-9 Tractor offers performance reliability and ease of servicing that pays off in year-after-year efficiency. Here's what we mean:



BUILT TO STAND THE GAFF OF DAILY USE FOR YEARS...

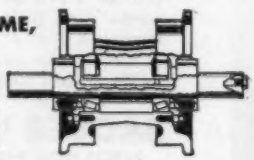
One-piece, welded main frame forms a continuous, strong backbone that means longer life for each tractor.

Oil-enclosed track release mechanism keeps adjustment at required setting and reduces track maintenance and breakage.

Smooth, efficient power train gives extra life, greater ability to absorb the punishment of tough jobs for every gear, shaft and bearing in the tractor.

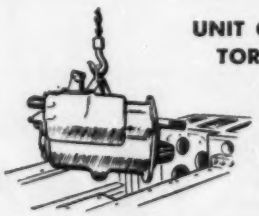
A-type truck frames permit free track oscillation and eliminate twists and strains caused by rough terrain.

EASIER LUBRICATION SAVES TIME, HELPS PROTECT EQUIPMENT



Lubrication period of 1,000 hours for final drives, truck wheels, idlers and support rollers saves both grease and time. Spring-loaded, Positive Seals keep grease in, keep dust and water out.

Fewer, more accessible lubrication points make short work of a chore. No lube points at all under tractor.



UNIT CONSTRUCTION PUTS TRACTORS BACK TO WORK SOONER

Transmission can be removed as a unit without removing clutch, final drive or bevel gear.

Engine can be removed without disassembling clutch.

Truck frame can be dismantled without removing final drive, sprocket or equalizer spring.

Clutch assembly can be removed without disturbing engine or transmission.

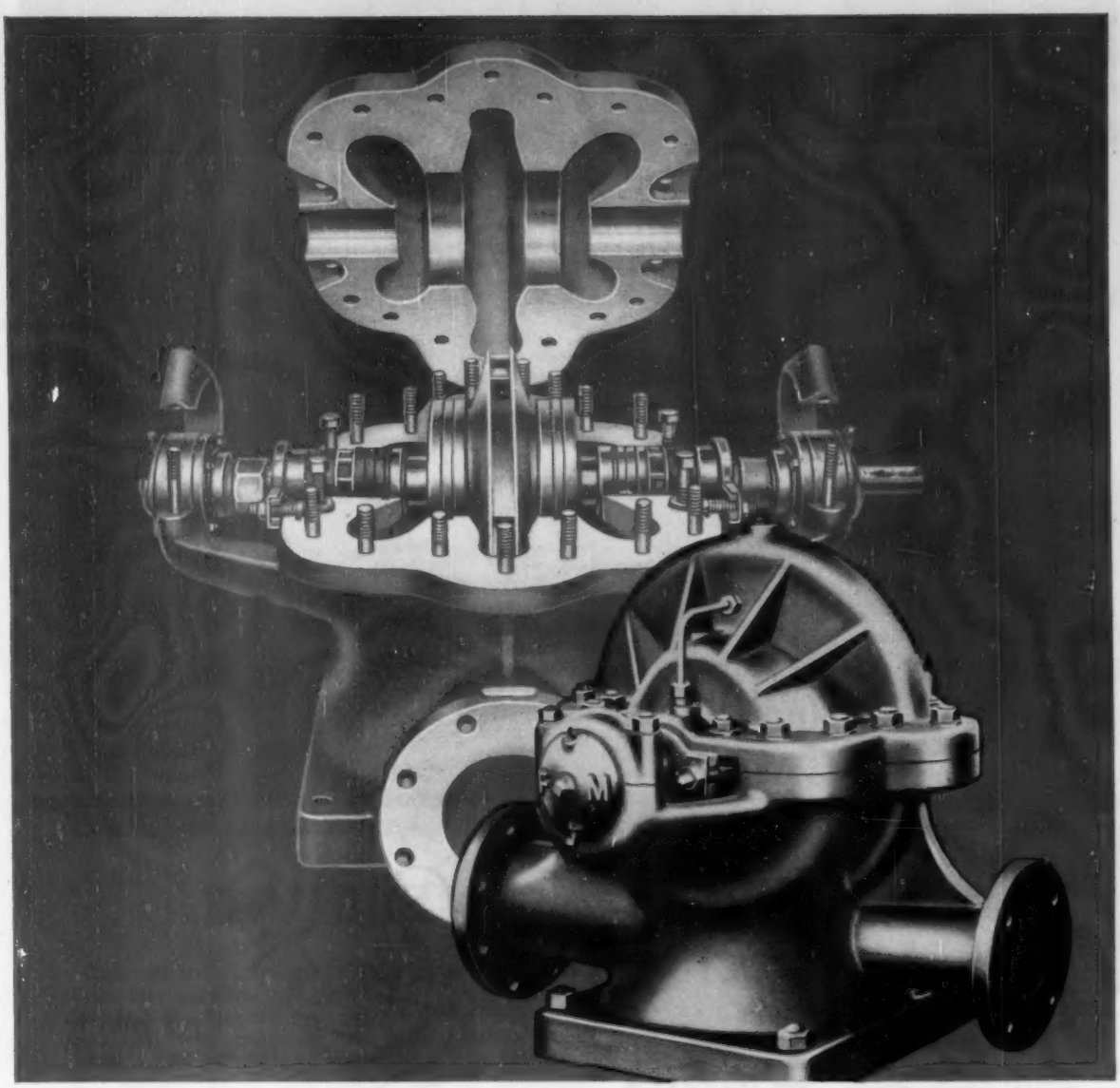
Final drive gear and intermediate gear can be removed without disturbing steering clutch.

Each steering clutch can be removed independently without disturbing final drive or bevel gear.

• • •

Let your distributor tell you more about the rugged construction, ease of servicing and outstanding performance ability of the Allis-Chalmers HD-9 Tractor. It's a story that adds up to value you can measure in yards per day and in years of service.

ALLIS-CHALMERS
TRACTOR DIVISION — MILWAUKEE 1, U. S. A.



out of the mouth of a pump...

Suppose a pump could "spill its works" . . . tell you how it was made . . . speak of the design, material, workmanship that went into its being . . . then you could know . . . and buy with confidence.

Because after all, pumps do look very much alike. How, then, to tell which make is best for you. *Reputation* is one way, *performance* another.

And, on both counts, Fairbanks-Morse pumps stand out. Don't take our word for it. Check with Fairbanks-Morse users. We'll stand by their verdict. For Fairbanks-Morse has only one standard . . . *quality* . . . the quality that means dependability, service, low maintenance, all those important points that you want in the pumps you buy.

To get these advantages in your pumps, rely on the world's largest manufacturer of a complete pump line. See your nearest Fairbanks-Morse Branch, pump dealer, or write Fairbanks, Morse & Co., 600 S. Michigan Ave., Chicago 5, Ill.

FAIRBANKS-MORSE

a name worth remembering when you want the best

PUMPS • SCALES • DIESEL LOCOMOTIVES AND ENGINES • ELECTRICAL MACHINERY • RAIL CARS • HOME WATER SERVICE EQUIPMENT • FARM MACHINERY • MAGNETOS

"EYE-CATCHING" . . .
STREET NAME ASSEMBLIES

BY
MIRO-FLEX

B-4PB Four-Way Bracket Pedestal Assembly for Whiteway or Utility Poles

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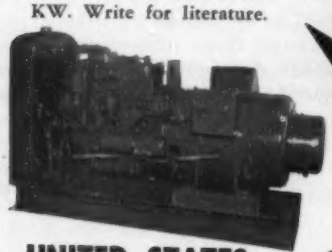

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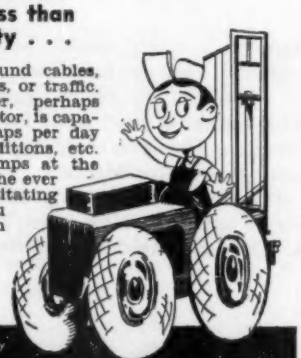

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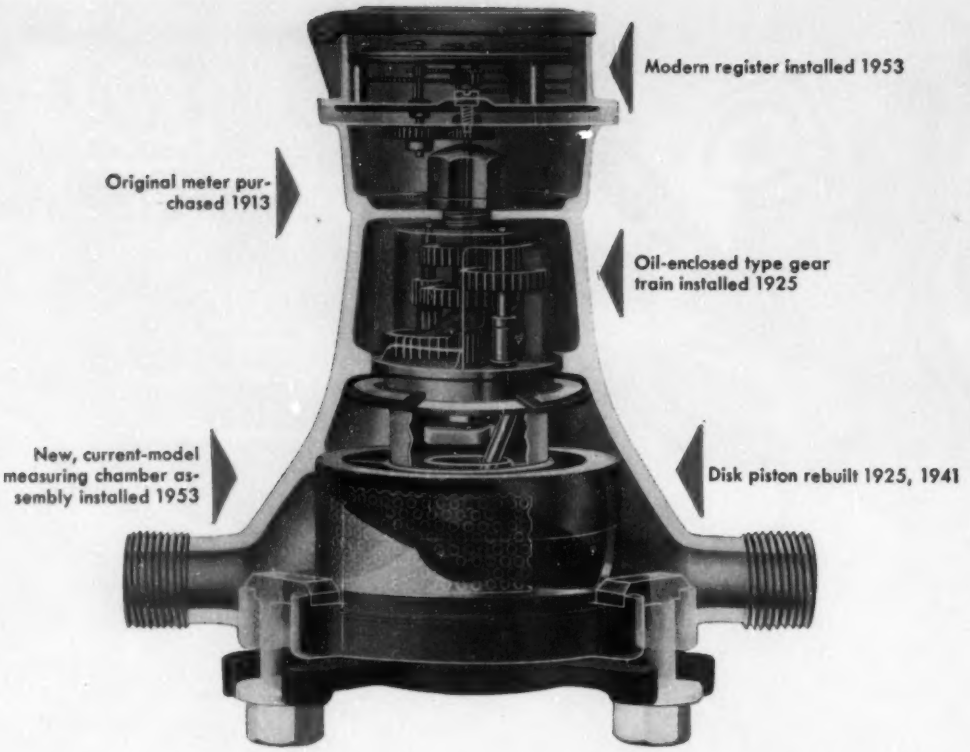
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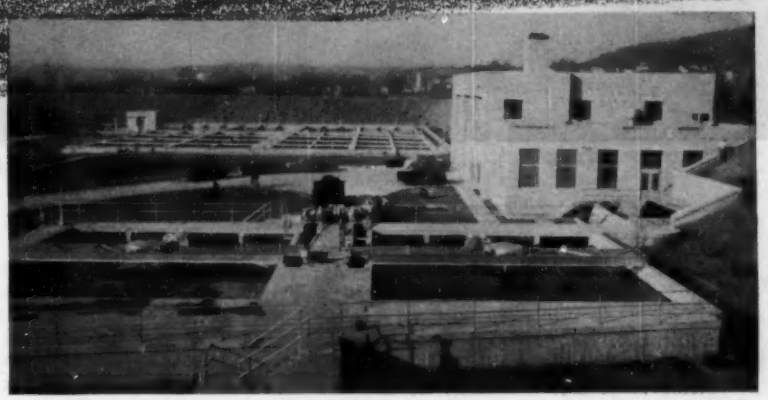
JUNE 1954 The American City

One Plant Up and Three To Go

Cincinnati builds the first of four sewage-treatment plants as its part in the reclamation of the Ohio River



Each of the grit chambers (foreground) is able to pass the entire 29-mgd design flow. On the other side of the plant's chemical building (rear) lie the settling tanks.

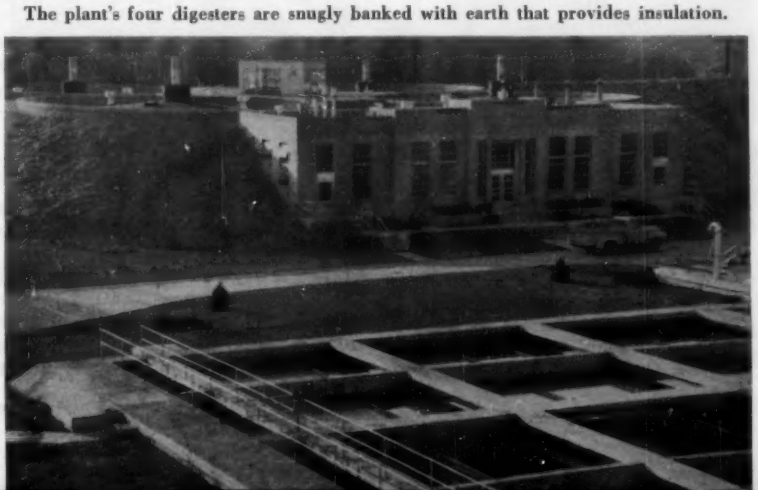
RARELY has any sewage-treatment plant started operations under more auspicious circumstances than has the Little Miami Plant, recently constructed by the City of Cincinnati. At the dedication ceremonies, attended by about 500 people, two governors spoke, expressing their determination that this plant will start a trend that will soon free the Ohio River from the damage of pollution.

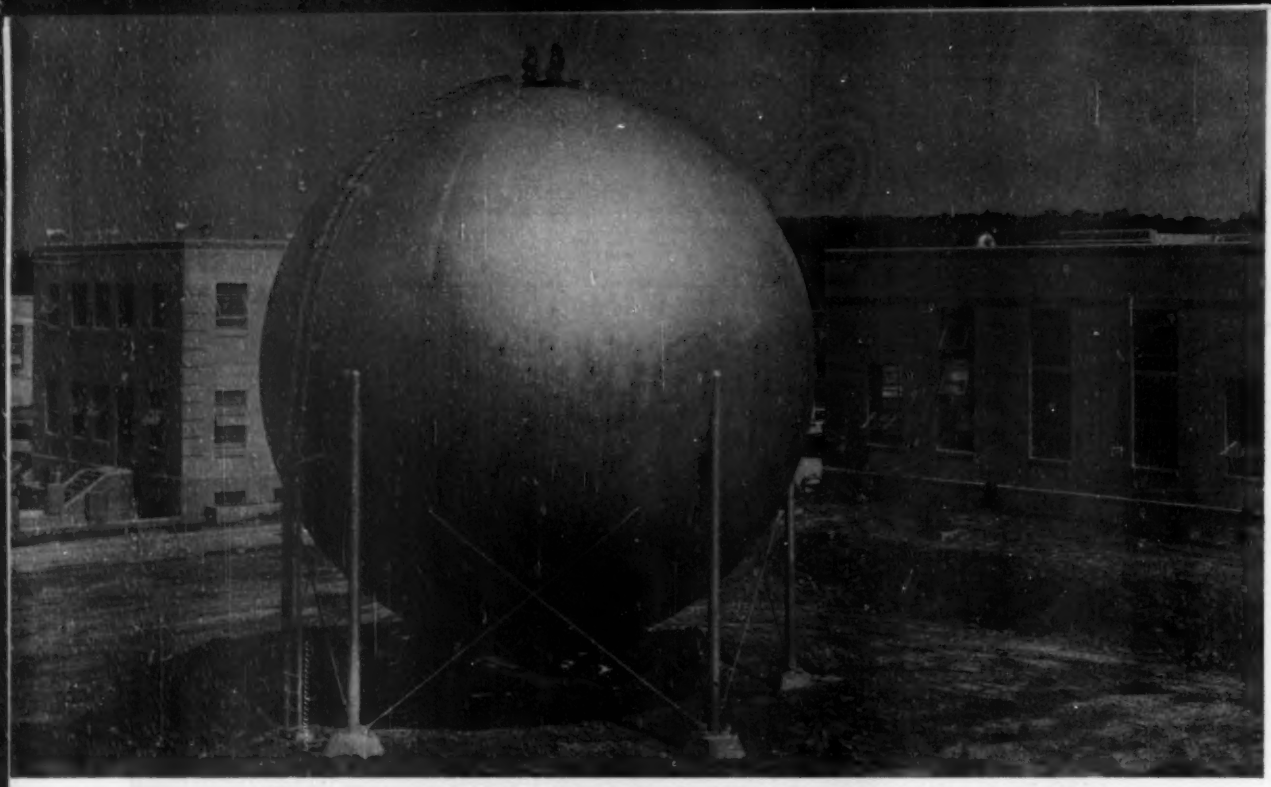
The Ohio River is one of the most beloved of America's waterways, yet what has happened to it since industry has settled along its banks is hardly a credit to American progress. However, the construction of the Little Miami Plant is a strong and aggressive measure to correct this discouraging situation. It is an example of a well-coordinated project within the planned pollution-abatement program of the Ohio River Valley Sanitary Commission.

The plant is one of four that Cincinnati is in the process of building. It has a design capacity of 29 mgd (million gallons daily) of largely domestic sewage, containing polluted matter measured at 270 ppm in BOD and 250 ppm in suspended solids. The second plant, designed to service what is known as the Mill Creek area and already under construction, will be able to treat 120 mgd of sewage containing strong industrial wastes measured at 400 ppm as BOD and 500 ppm as suspended solids. The two remaining plants will have an aggregate capacity of 10 mgd and will receive residential sewage.

The completed plant is designed to provide primary treatment, increased by chemical precipitation when more thorough purification is required. The treatment is designed to conform to the standards set by the Ohio

The plant's four digesters are snugly banked with earth that provides insulation.





Digester gas is stored in this spherical gas holder before being used for various heating purposes.

River Valley Sanitation Commission for the Cincinnati "pool." These specifications provide for:

"Substantially complete removal of settleable solids.

"Removal of not less than 45% of the total suspended solids.

"Reduction by not less than 65% of the biochemical oxygen demand of organic wastes, provided, however, that whenever conditions permit, such lesser degree of reduction of biochemical oxygen demand, but not lower than 35%, may be applied to organic wastes if, as a result, there will be no impairment in the Cincinnati Pool of a water quality standard of 4 ppm of dissolved oxygen at the bottom of the oxygen sag in the Ohio River below Cincinnati."

Pumping

The sewage arrives at the plant through two main trunk lines, both served by pumping stations. The larger of these stations is located on the plant site and uses a total of five Fairbanks-Morse angle-flow, centrifugal pumps to deliver the sewage to the plant. The pumps are protected by a 3-inch bar rack that is manually cleaned.

The second station is known as the Delta Avenue Pumping Station, located approximately 1½ miles from the sewage plant and connected by a 24-inch cast-iron force main. Here, three 3,000-gpm Economy pumps are protected by two comminutors that are designed to pass 8.4 mgd.

The sewage then flows past an overflow and bypass before going to the twin grit chambers. The bypass is equipped with 60-inch Chapman sluice gates.

Each of the grit chambers is able to pass the entire 29-mgd design flow so that one can be taken out of service if necessary. The chambers measure 40 by 40 feet and use Dorr Detritor revolving scrapers and reciprocating rakes. These deliver a washed grit to a Dempster Dumpster container for easy delivery of the screenings to a disposal point. This same system of trash handling is employed for the removal of screenings, sludge, and ash from the incinerator. One truck is able to service several of the containers.

The grit-free sewage then proceeds to the chemical building. Here it passes through any of three Chicago comminutors that macerate the larger suspended solids in the raw sewage. The shreddings remain in the sewage and are later removed as settleable solids in the primary settling tanks. The combined capacity of the three comminutors is 90 mgd.

The sewage also passes through a Builders-Providence venturi meter that continuously records the volume of sewage. This meter is 66 inches in diameter at the inlet and 33 inches at the throat. It is able to record rates of flow varying from 8 to 90 mgd.

In this building are located two Omega dry-feed machines that will apply alum to the sewage when it is needed to increase the purification process. The feeders can apply up to 1,000 pounds of alum per hour. Three Wallace & Tiernan vacuum-fed chlorinators are also located here. Each is able to deliver 2,000 pounds of chlorine per 24 hours, but is designed so that it can be enlarged to a capacity of 4,000 pounds.

The piping is arranged so that the chlorine can be applied at various points within the treatment plant. The chlorine is received in ton containers and handled by an E. W. Buschman monorail system which transfers it to a 6-ton Howe platform scale. Two Wallace & Tiernan chlorine evaporators, electrically heated, change the liquid chlorine to a gaseous form.

Aeration

The sewage then proceeds to the flocculation-settling tanks through an aerated channel containing 154 Chicago Pump Precision air-diffuser tubes mounted on fixed arms. Two Roots-Connersville rotary blowers supply air to the tubes. Each is able to deliver 600 cfm of air against a pressure of 4 psi or, with one ma-

chine in reserve, 0.02 cubic feet of air per gallon at 150% of average flow. The tubes put the sewage in contact with air at the rate of 0.06 of a cubic foot of air per gallon of sewage at the design flow of 29 mgd.

The sewage then enters four flocculation-settling tanks, designed to remove substantially all of the settleable solids as required by the Ohio River compact. The four tanks are combined as an over-all structure in which the flocculating chamber in each is 41 feet wide, 61 feet long, and has a 14¾-foot water depth. The settling chamber is 40 feet wide, 124 feet long, and has a 12½-foot water depth.

The flocculation section uses Link-Belt paddle-type flocculation units; the settling section uses Link-Belt straight-line sludge collectors that operate beneath the flocculation units. The effluent from these tanks is chlorinated when necessary before being discharged into the Ohio River.

Digestion

The raw sludge from the settling tanks passes through a Pacific Flush Tank heat exchanger before entering the digesters. There are four of these exchangers, each able to provide 750,000 BTU of heat per hour. The sludge requires only about half of this heat to bring it to the proper digestion temperature; the balance is used to heat recirculated sludge and compensate for heat losses as well as to heat the plant building. Two Chicago Pump Scru-Peller sludge pumps transfer the sludge to the digesters.

Four circular digesters receive the sludge. These are grouped around a central control chamber wherein is located piping and Merco-Nordstrom lubricated plug valves for regulating the inflow, outflow, interchange of sludge and supernatant, and for the collection of gas. The chamber also contains two Fairbanks-Morse 400-gpm pumps that circulate the sludge in the digesters and two rated at 200 gpm for supernatant. Each digester is 65 feet in diameter and has a 26-foot sidewall depth. A Pacific Flush Tank floating cover is used on each unit.

Sludge Gas

Gas generated during the digestion process goes to a Chicago Bridge and Iron Hortonsphere, a spherical unit which stores the gas until it is needed by the digester heat exchangers or the heating-plant boilers. The Hortonsphere is 36 feet in diameter and holds 49,000 cubic feet of gas at 29.9 pounds per square inch.

A Roots-Connersville rotary meter records the amount of gas generated; the meter has a top capacity of 15,000 cfm. A Nash Engineering Company compressor brings the gas to its required 29.9 psi. Seven other Emco gas meters, Pittsburgh Equitable products, measure the gas used.

Before it is dewatered on vacuum filters, the digested sludge is elutriated, a process in which the solids are washed so that they are more easily filtered. There are two of these elutriation tanks which are set up on the counter-current principle. Sludge enters the first tank, is mixed with effluent from the second tank, and is allowed to settle. Then it is transferred hydraulically to the second tank where it is mixed with clear water. This treatment reduces the amount of ferric chloride required to make the sludge easily filtered.

The sludge is then dewatered on Conkey vacuum filters which were made by the General American Transportation Corporation. Each filter is 6 feet in diameter and provides 150 square feet of filter area. The filters are equipped with Worthington filtrate and vacuum pumps. The vacuum pumps are rated at 600 cfm; the filtrate pumps can transfer 70 gallons of filtrate per minute, which is delivered to the elutriation tanks.

The dewatered sludge is transferred by a Link-Belt belt-type conveyor to either of two Nichols Multihearth sludge incinerators. These have five hearths and are designed to burn 45 tons of dry solids containing 30% combustibles per day. A Builders-Providence continuous-weighing mechanism that is attached to the belt conveyor measures the quantity of sludge delivered by the plant. The incinerator will either burn the sludge completely or dry it to a 10% moisture content should the sludge be required as a soil conditioner.

Laboratory Control

The plant has a modern, fully equipped laboratory located on the second floor of the administration building. This room, supplied with Kewaunee furniture, benches, and cabinets, will permit complete laboratory control of all phases of plant operation. In addition, periodic tests will be made on samples of water taken from the Ohio River to indicate the degree of treatment needed to maintain sanitary conditions.

The plant was designed by Havens & Emerson, consulting engineers of Cleveland, under the direction of Frank C. Tolles. It is operated under the general administration of W. R. Kellogg, city manager, and T. J. Montgomery, city engineer. A. D. Caster is sewage-disposal engineer and D. P. Backmeyer is superintendent.

Swamp Grass Cutter

Swamp grass presents no problem to the new Blitzer mower.

TOUGH, UNMOWED swamp grass at La Guardia Airport, New York City, was easily cropped by a Worthington Blitzer in a recent demonstration held for the Port of New York Authority. The three-gang rotary unit mows a 17-foot swath, and cuts tall growth into finely cropped vegetation that should become a soil-enriching mulch.

The Blitzer, powered by three 13.3-hp Wisconsin engines, covers 10 acres per hour at a speed of 5 miles per hour. William Roulette, Worthington sales manager, explained to Acting Airport Manager Ed Sorenson and his staff that any hauling unit, such as a Jeep, truck, or tractor, can pull the mower, and that, in tandem, it can be easily towed.

Water is softened in a 2-mgd, rectangular-type Permutit Precipitator to a hardness of 60 to 80 ppm.

From Hard To Soft Water The Hard Way

By J. R. GARDNER
Warren & Van Praag, Inc.
Decatur, Ill.

Taylorville, Ill., patiently and persistently solves a tremendously difficult water supply problem in the face of unusual obstacles

FOR MANY YEARS, Taylorville enjoyed the dubious distinction of having the hardest municipal water supply in Illinois. After a five-year campaign and considerable political strife, the city now boasts of one of the best water supplies in the state, judged by the most critical standards of quality and quantity.

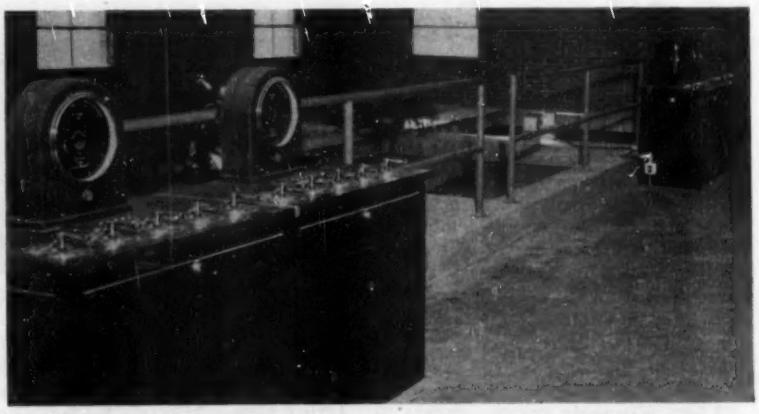
This central Illinois city of 9,200 people supports diversified industries. Coal mining, once its principal activity, has given place to paper making, railroad shops, soybean processing, dairy production, chicken hatcheries, poultry packing, and the manufacture of high-line electrical tools, greeting cards, stationery, envelopes, agricultural inplements and garment-pressing equipment.

Ever since the public water system of the city was put into service in 1888, water has been obtained from one or more relatively shallow wells which reach into water-bearing formations created by prehistoric glacial action. Eighteen wells, dug or drilled near the center of town, contributed to the original supply.

The first was a shallow, dug well of large diameter, which was later lined and used as a reservoir. The others were drilled to diameters ranging from 8 to 18 inches, and depths as great as 130 feet. All were spaced 50 to 135 feet apart. These inordinately close locations and the resultant interconnecting influence upon the drawdown of each well ultimately reduced the yield of each. Later, another well was drilled about a mile from the center of the city. This was 16 inches in diameter and about 100 feet in depth, augmenting the supply.

Since the water table was comparatively high, water was pumped from the early wells by direct suction. Later, as the water table receded, turbine-type, deep-well pumps were installed. Some of the pumps discharged directly into the distribution system and some to a reservoir.

The distribution system served the major portion of the built-up area



Fern plants (behind the filter tables) add to the attractiveness of the filter room.

within the city limits only. Water mains ranged from 4 to 10 inches in size; and a 30,000-gallon, steel, elevated tank, 36 feet high and 12 feet in diameter, was located on an 80-foot-high brick tower.

Excessive Hardness

The water, while safe to drink, was discouragingly difficult for use either by the housewife or industry. Iron content ranged from 2.7 to 5.8 ppm (parts per million). The total hardness was 650 to 974 ppm (38 to 56 grains per gallon) with the average about 800 ppm, or eight to ten times harder than a water should be. The total solids content of the water varied from 942 to 1,051 ppm.

Complaints about "red water" were common. Rapid corrosion of water-heater coils was the rule rather than the exception. Meters became quickly clogged and inoperative, creating an annual cleaning and repair problem. The Taylorville water supply was held up as a "horrible example" to cities in Illinois with populations larger than 2,500.

The first corrective step was taken in 1939 when the city purchased zeolite softeners of the household type and installed and serviced this equipment with its own forces throughout the city. These softeners were used mostly for hot-water heating service. By November 28, 1947, the city had 469 active softener accounts among its 2,616 water-service customers.

The next measure was the consideration of a surface supply. Since this was a "make-work" type of project, use of WPA labor was recommended. However, World War II inactivated WPA and the idea was abandoned.

After the war, the city was encouraged to reconsider the use of a well field. An electrical resistivity study by the Illinois State Geological Survey indicated that an area two miles northeast of the city was promising. During 1947-48, the city made test-hole explorations that confirmed these findings and, the following year, authorized our firm to proceed with plans. The supply from this field has no iron or manganese content and its hardness is approximately one-fourth that of the old supply.

However, a large group of citizens still wanted a lake on the Sangamon River which would serve as a recreation area as well as a reservoir. The fact that the cost of such a step would be two to three times the cost of an adequately treated well supply was no deterrent.

Another obstacle to the plan was created by the zeolite softening service which had been taken over by a group of local citizens. These people were most critical of the water-supply project, especially the installation of a municipal softening plant.

Financial Problems

Nevertheless, the city was determined to proceed with its course of action. On December 7, 1949, the Council entered into an agreement with two commercial-bond houses for the purchase of a $1,000,000 issue of water-revenue bonds that would finance the improvements. This move also was opposed.

On December 19, the Council received a complaint, protesting the action and requesting a public sale of bonds. Although Illinois law does not require the public sale of water-revenue bonds, the Council rescinded its earlier agreement to placate the public.

Subsequently, the city advertised on a nationwide scale, announcing the sale of $1,000,000 of water-revenue bonds. On February 28, 1950, bids for the bonds were taken and, on the basis of lowest and best bids, a contract was awarded to a syndicate of bond houses headed by G. H. Walker & Company, of St. Louis, Mo.

Then, on April 25, the Council passed an ordinance for the construction of the water-system improvements, for the issuance of $1,000,000 in water-revenue bonds, and for the liquidation of the indebtedness. State law provides that such an ordinance may become effective without public referendum 21 days after publication, provided no protest petition has been filed and signed by a specified number of registered voters. However, such a petition was filed. Finally, on June 9, after mass meetings in which the facts were explained to the voters, the project was approved by the rather close vote of 1,097 to 913.

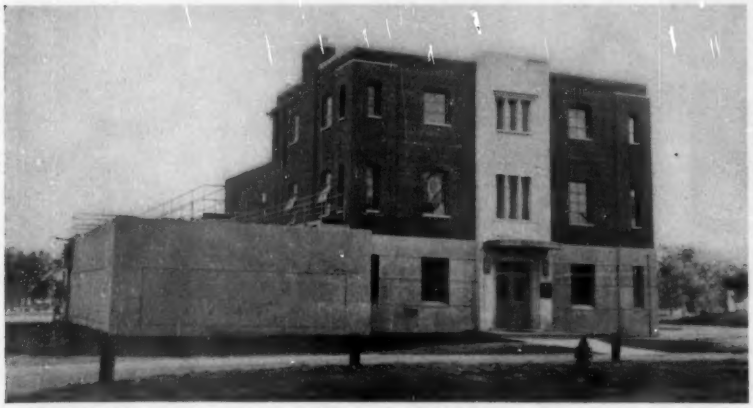
Following this, the city received construction bids, and on July 25, 1950, awarded contracts. The major portion of the work was completed by the end of 1951.

The project embraced the well-field development, the construction of a softening plant, and other water-works appurtenances. Four gravel-walled water wells were drilled in the selected area by the Layne-Western Company of St. Louis, Mo. The Illinois Water Survey Division has judged this site as one of the best water-well fields in the central part of the state.

The installations range from 88 to 118 feet in depth. Each is fitted with a 26-inch inner casing, 42-inch outer casing, and 26-inch No. 4 screen. Capacity tests of the wells indicate maximum yields of 1,200 to 1,600 gpm, with one well capable of 2,000 gpm. Safe yield for continuous pumping was established at 800 to 860 gpm.

Fairbanks-Morse deep-well, electric-driven turbine pumps are installed in all four wells. Two pumps are rated at 800 gpm against a 92-foot head, and two at 850 gpm against a 100-foot head. The two larger pumps were provided with auxiliary drives for use at times of power interruptions. Continental gasoline engines, rated at 86 hp, provide the auxiliary power.

The pumps deliver the water to the treatment plant through 12-inch and 14-inch raw-water pumping mains which are approximately two miles long. Pipe used is Class 100 U. S. Pipe and Foundry cast-iron. An electric-control cable was installed along the water pipeline for automatic control of the wells from the water-treatment plant. The cable connects with a Westinghouse panel carrying pump starters and controls,



Water from four wells loses its hardness in this attractive treatment plant.

as well as indicating, recording, and totalizing gauges. Each well has a Sparling discharge meter, and the line itself is equipped with a Sparling master meter.

The water-treatment plant is a three-story brick and concrete structure which houses all water-processing facilities. The top floor is reserved for chemical storage and can accommodate between 70 and 90 tons. The second floor houses the chemical feeders, chlorinators, office, and laboratory. The bottom floor is occupied by the filter mechanism, filter-pipe gallery, high-service pumping station, chlorine-storage space, and the heating system.

Water-softening mechanism includes a rectangular Permutit Precipitator of 2-mgd capacity where water is softened to a hardness of 60 to 80 ppm. The plant also has the benefit of a well-equipped laboratory that uses A.S. Aloe equipment and E. H. Sheldon laboratory furniture. Filters consist of four basins, with a rated capacity of 0.5 mgd each, and Simplex controls. A clear well of 900,000 gallons capacity is located below the filters. A DeLaval wash-water pump that takes suction from the clear well keeps the filters clean. This pump can deliver 2,800 gpm against a 50-foot head of pressure.

Wash water is discharged to an open ditch at the rear of the plant site. Sludge from the water processing is discharged to open sludge beds located about one-quarter mile to the rear of the plant site. The plant is fully automatic in operation, except for filter washing. The water leaving the plant is chlorinated by either of two Wallace & Tiernan MSVM units, each able to deliver 200 pounds of chlorine per hour. One unit has been used to feed carbon dioxide to recarbonate the water.

Distribution

The distribution system now has the benefit of a 500,000-gallon elevated tank and tower at the site of the original wells and pumping station. This provides pressures up to 60 pounds per square inch for all parts of the city. An electric cable line extends from the elevated tank to the water plant for control of the high-service pumps.

Three DeLaval pumps are available to the distribution system. Two are powered by a 50- and a 100-hp Elliott electric motor respectively. One delivers 890 gpm against a 155-foot head, while the other delivers 1,480 gpm against a 170-foot head. The third pump is powered by a 152-hp Continental gasoline engine and is used for standby purposes. It can deliver 2,100 gpm against a 195-foot head.

The water-distribution system receives the water through a 12-inch and 14-inch feeder main that extends from the water-treatment plant to the elevated tank. This main is constructed of Class 150 U. S. Pipe and Foundry cast-iron pipe.

The distribution system was further strengthened by laying large feeder mains to various sections of the city, by laying smaller connecting mains, and eliminating practically all dead ends. New main extensions now reach areas previously unserved. The gate-valve system has been repaired throughout the city, and new Mueller fire hydrants have been installed so that all areas are now provided with adequate hydrant protection.

And so the "horrible example" that the municipal water supply of Taylorville served has been transformed into a shining example of quality and quantity for Illinois municipalities. Mayor Joe McAdam, City Attorney Clark Miley, Water Superintendent Jason Daykin, City Clerk Bennie Jones, and the entire City Council can feel justly proud of their accomplishment.

A Volley of 800 Barrels

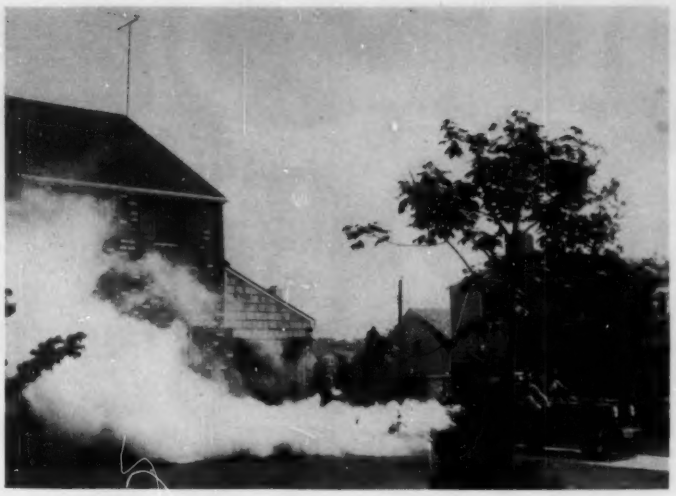
THE BOOM in water-service business in La Porte, Ind., is resounding with the volley of 800 barrels. This summer, the Water Department plans to set 400 meters, all in meter boxes at the lot line. Since two barrels are required for each setting, the job calls for 800 barrels, each with a 20-inch inside diameter and 24-inch length.

The use of steel forms for this unusual order would have been too expensive. Even with ordinary re-use of the forms, so many units are needed that the work would be a nuisance. Instead, the department is using individual Fiberforms, developed by the Ford Meter Box Company of Wabash, Ind., which are inexpensive enough to be discarded. For a starter, the barrel-construction crew was able to average seven barrels per hour but soon extended the output to ten.

Four men were assigned to the construction of barrels for La Porte's meter installation program. The crew began by putting out seven and finally ten barrels per hour.

La Porte, a city of 18,000 in northern Indiana, has for a long time followed the policy of setting meters at the lot line in order to expedite meter reading and to do away with the nuisance of disturbing housewives. This location of meters also resolves the argument of who is responsible for leaks in the service line between the main and the residence.

The public willingly lets insecticide enter homes, making the most effective use of the ground-fogging program in Coffeyville, Kans.



Ground fogging replaces airplane spraying in this Kansas city's attack on insect nuisances

Flyless Coffeyville

By DENVER D. HARGIS
Mayor
Coffeyville, Kans.

IN MANY TYPES of warfare, air attacks are mighty effective. But to make permanent gains, the ground forces have to move in. This has been the experience, too, of Coffeyville's war on flies, mosquitoes, and similar nuisances.

In previous years, the city has sprayed the entire area once each year with insecticide from the air. This aerial spraying cost $4,000 annually. Last year, changing our tactics to the use of ground forces, we spent $1,846 for a Todd Insecticidal Fog Applicator (TIFA), employed two men, purchased twelve 55-gallon drums of DDT, two drums of Chlordane, and fogged the city and its environs three times. The total cost was $600 less than the expenditure for airplane spraying. Thus far, we have found the results of ground spraying to be much more effective than spraying from the air.

Assessments

We have put this fly-control program on a strictly pay-as-you-go basis, financing it by adding $1 to each light bill and identifying it on the bill as an assessment for fogging. Theoretically, this may not be the best way to handle the financing. Some people at first refused to pay the assessment. However, when the benefits of the program became manifest, the few recalcitrant citizens soon came to us with their dollars. Some even apologized to me personally for the delay. This year, with our fogger paid for, we should be able to reduce the assessment to only 25 cents per light meter, which is certainly a reasonable charge to insure our city's freedom from insect pests.

In this city-wide program, we covered the stockyards and suburbs, also. Based on the 1952 census, we estimate that we provide service to a population of 18,147 within the city, and an additional 3,000 persons on the outskirts. We have 72 miles of streets in our 8½-square-mile municipal area that required servicing, and two parks, covering 500 acres, that were fogged twice during last year's city-wide program of effective insect control.

When our fogging operation was inaugurated, everyone first closed his home to keep out the fog. I tried to encourage them to leave the doors open so that the fog could drift through the buildings. By the third operation, doors and windows were open all over town. We also tried to impress the people with the need for good sanitation, which is basic to the fly-control program.

Whenever we received a complaint that "the fogger did not hit my place last night," we sent the machine out to treat the area again. This ability to provide individual treatment offers a very definite advantage over the one-shot aerial spraying. The only persons who perhaps may still favor aerial operation are those on the outskirts of the city and outside the city limits whose homes adjoin open, untreated fields. However, even here, concentrated attention by the fogger will accomplish a good deal of nuisance abatement.

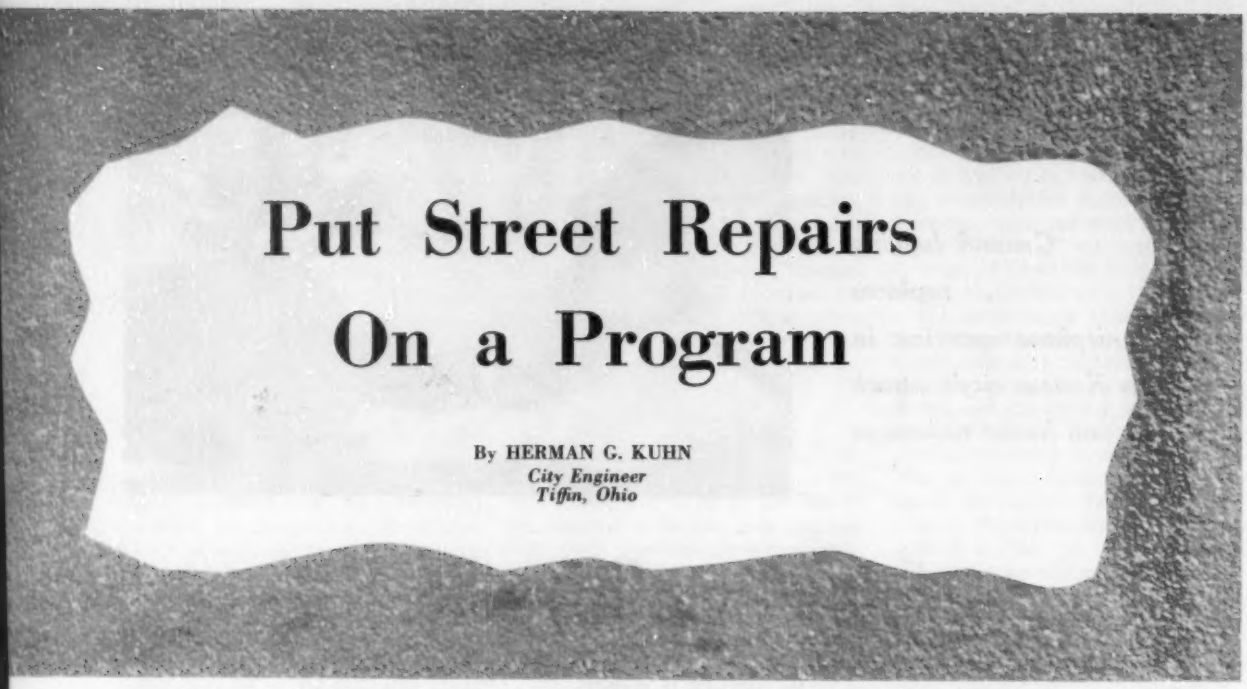
Complaints

It is interesting to note that after fogging the city and cutting the fly and mosquito population, we have received calls from residents complaining about "a fly," where there probably were hundreds before the ground fogging. There is now no question in the public's mind about the effectiveness and value of this type of work.

Industries also have requested our fogging services. One large company in Coffeyville asked us to exterminate lice. We took the TIFA through the plant once, and they have been pest-free ever since. The Fair Association also asked for service, and we treated the cattle and horse barns, and other buildings. Even one of our neighboring small towns has asked for the fogging service, but we have not yet responded, preferring to devote our energies to the needs of Coffeyville.

Put Street Repairs On a Program

By HERMAN G. KUHN
City Engineer
Tiffin, Ohio



The semirough texture of the finished pavement gives good nonskid characteristics.

Tiffin, Ohio, finds that street work is accomplished most efficiently when it is scheduled for a definite three- or four-year program

AT ONE TIME, brick-paved streets were popular in Tiffin, a city of 19,000 in north central Ohio. Altogether, we have close to 80,000 square yards of brick paving on streets carrying the city's heaviest load of traffic. However, these streets are old timers, built in the days before World War I. Although the streets remained strong enough to carry the loads, they became rough and noisy.

Asphalt Favored Over Brick

In the late 1920's and early 1930's, brick gave place to asphalt in the public's favor. And so we have more than 115,000 square yards of streets surfaced with sheet asphalt. After many years of service, these streets developed holes and cracks. Repeated patching only made the surface uneven, and as far as cracks were concerned, we had no luck at all in keeping them filled.

Back in 1947, it became obvious that if our streets were to be used for anything but a runway for mountain goats we had better take corrective action. So we established a three-year plan of rehabilitation for the asphalt streets, and a five-year program for the brick surfacing. With such a procedure, everybody was aware of the way the program would develop, including the public, city council, engineering staff, and contractors.

We took the first step of the asphalt-surfacing project in 1948, adjusting the extent of each year's program so that it could be financed by our allotment from the money available from license tags and gasoline tax.

Contracts Awarded

The resurfacing was all awarded by competitive bids to a private contractor and specifications were prepared in this office under the direction of the author. The contractor's bids were very favorable, all remaining less than 35 cents per square yard.

The first step in the resurfacing work was to clean the old pavement. The contractor flushed it and broomed it with a rotation road broom. Next, we sealed the old pavement and its cracks. Upon the cleaned pavement, we directed that an asphalt emulsion, meeting Ohio State Highway specifications SS-1 be applied. This was placed by a pressure distributor at the rate of 0.20 of a gallon per square yard. We then spread finely graded crushed stone at the rate of 15 to 20 pounds per square yard. The stone was graded so that 100% would pass a No. 4 screen and up to 18% would pass a No. 16 sieve. We confined the work to sections of two or three blocks, making a complete application of cover material before proceeding.

Drag brooming immediately followed to mix the asphalt with the aggregate; some hand brooming was required in areas adjoining the

curbs. The surface was then rolled and opened to traffic after four to eight hours had elapsed.

The next step was to apply the wearing surface. We allowed the seal coat to cure for at least 24 hours before making this application. The procedure parallels the one used for crack sealing.

Crack Sealing

The first step is to remove the loose aggregate by brooming. Then we place on the clean pavement an application of RS-3 asphalt emulsion at the rate of 0.30 of a gallon per square yard. Immediately following this, before the emulsion has begun to "break," aggregate of the same grade as was placed previously is distributed with a drag broom at the rate of 20 to 25 pounds per square yard and then rolled.

We allow this treatment to cure for 24 hours before making a second application. This time, we use a lighter grade of emulsion, RS-O, applying it at the rate of 0.15 of a gallon per square yard. On this, we place no cover aggregate. We open the street to traffic after the surface has cured for 12 hours.

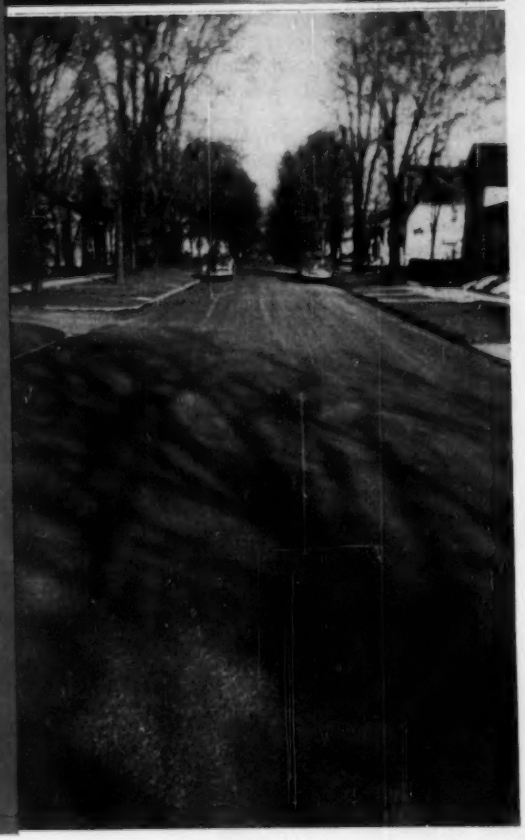
As mentioned previously, this phase of the program was completed at a cost of only 35 cents per square yard according to the scheduled three-year period, from 1948 to 1951. The street rehabilitation has been very successful and is giving excellent service.

Brick Streets

We then proceeded to put our brick streets into good shape. On these roadways we are placing an asphaltic concrete, prepared in a portable Hetherington and Berner Moto-Paver. Our specifications are written to incorporate the standards of the Ohio Department of Highways for T-32, method "C," which is a modified, hot-mixed surfacing that uses a cut-back emulsified asphalt for the binder. This differs from the standard emulsified asphalt in that the water is retained in the internal phase of the combination, instead of the asphalt. Retention of moisture in this way insures that the asphalt emulsion will remain in a more consistent state, avoiding the tendency of the water and asphalt to separate as sometimes happens on standing.

We specified a minimum of 17 gallons of the cut-back emulsified asphalt per ton of aggregate used. A relatively coarse stone, identified in Ohio specifications as No. 46, serves for the base course, and a finer No.

In time, even solidly built brick streets develop rough surfaces.



A planned rehabilitation program makes streets look like new at relatively low cost.

6 stone is used for the top cover.

To expedite matters, we clean all brick streets with city forces, using an Austin-Western street sweeper and hand crews where needed. The contractor follows behind our cleaning crew and applies a prime or tack coat at the rate of 0.15 of a gallon per square yard, covering it with a relatively fine "7C" (Ohio specifications) crushed rock which is applied at the rate of 4 pounds per square yard.

Next, we place the base course, after all excess aggregate has been removed. This layer has a minimum depth of 1½ inches and is used to level out irregularities in the old base. This course is permitted to cure for three to six days, depending on weather conditions, before receiving the top course which is ¾ of an inch thick. Both are compacted with a 10-ton, three-wheeled roller.

This course is allowed to cure for about a week. A seal coat of emulsified asphalt is then applied at the rate of 0.25 of a gallon per square yard and followed with a cover of "7C" applied at the rate of 20 pounds per square yard. We top this off with a very light fog coat for dust control.

This program for rehabilitating the brick street was begun in 1952. By the end of 1956, if we maintain our present rate of resurfacing between 12,000 and 15,000 square yards per year, we can expect all of the city's brick streets will be in top condition.

The cost of this particular phase of the program has been 85 cents per square yard.

How Cincinnati Uses Aerial Photographs

CINCINNATI'S AERIAL SURVEY hadn't progressed beyond the uncontrolled contact print stage before it was put to work, so great was the need for it. The accuracy of this survey was comparable to a well-executed ground survey, yet the cost was less than one-third, according to Bernard H. Kock, principal engineer in the office of the City Engineer for Cincinnati.

The survey began on March 25, 1947, with the active cooperation and financial assistance of surrounding Hamilton County. The aerial survey was designed to provide basic drainage information for storm and sanitary sewers; accurate information for preliminary planning and estimates of freeways and streets; and topography, sufficiently detailed to permit studies for stream control, airports, playgrounds, and similar projects.

The survey provided maps at a scale of 1 inch equalling 200 feet, and with a contour interval of 5 feet. The area photographed covered 427 miles. The over-all cost of the survey ranged between $3.50 and $4 per acre. Fairchild Aerial Surveys, Inc., of Los Angeles, was retained to do the work.

Used Before Completed

First to demand the maps was the Hamilton County Regional Planning and Rural Zoning Commission. Even before any maps became available, this agency was utilizing the uncontrolled contact prints in stereo pairs to determine land usage and allocation to meet the need arising from zoning regulations voted by many townships in the county. This agency, ever since the prints became available, has made daily use of them in reviewing subdivision applications outside the 3-mile zones surrounding incorporated villages and cities.

"Mapped Line" Plans

Cinicinnati's City Planning Commission also has used the maps regularly. This agency has been faced with the continuing assignment of producing preliminary engineering plans for adoption by the City Council, which would prohibit and control building construction and development within future project areas. These plans are known locally as "mapped line" plans and have the primary purpose of determining setback clearances for future projects.

The Planning Commission and the Engineering Department made an unusual and most economical use of the maps when it used them o establish mapped channel lines for Mill Creek. The stream traverses a broad industrial valley, completely filled with railroad yards. Because of damaging flash flood characteristics, it became necessary to provide sufficient channel space for future widening, control the construction of buildings adjacent to the channel, and strictly prohibit dumping and blocking of the flood channel space. To assemble this plan quickly to the degree of accuracy desired, it was necessary to make intensive use of the coordinated grid, the photo maps, and topographic sheets, where available, and stereo pairs of uncontrolled photo prints where other sources were lacking.

Used in Airport Planning

The maximum benefit accruing from the photogrammetric survey has been in the development and investigation of approach zones for the proposed Blue Ash Airport. The photographs quickly produced a solution that otherwise would have been impossible to obtain.

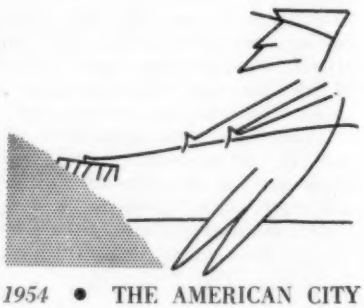
Recently the city's Sewer Design Section used the maps to excellent advantage when preparing plans for a trunk sewer to drain a residential and semi-industrial area of 10 square miles. The short time allowed the Sewer Design Section to prepare plans, and the sketchy topographic information available, created an impossible condition for any survey method other than photogrammetry, except at prohibitive expense.

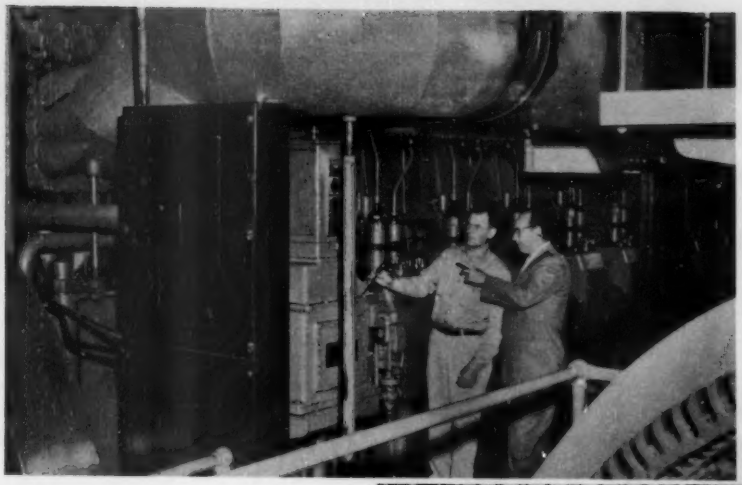
Four master-plan projects have been developed to a semidesign stage by exclusive use of available aero-map coverage. These have been the Mill Creek Expressway, a radial freeway, now partially completed, the northeast expressway serving the east and northeast suburbs and other areas; Columbia Parkway Extension, linking Ohio-Kentucky bridges and serving eastern Cincinnati, and the Sixth Street modified expressway.

The County Engineer has used the maps frequently to help locate culverts and bridges, and has found them valuable in helping him locate property and right-of-way lines, especially in agricultural areas.

In addition, industries, utilities, and railroads have utilized the maps intensively for plant maintenance and inspection, surveys of the right-of-way for power lines, and potential industrial use for land adjacent to track areas.

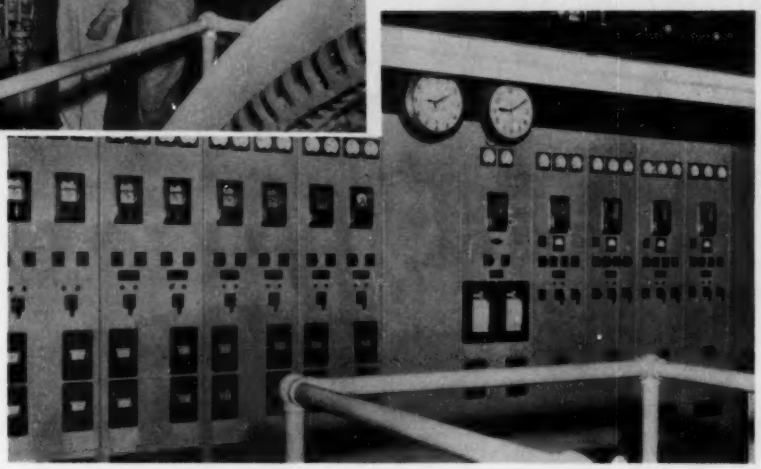
Mr. Kock described these uses of Cincinnati's aerial survey at the recent meeting of the American Society of Photogrammetry held in Washington, D. C.





Plant Superintendent Armour Boese (left) and City Manager Virgil Knowles discuss operating features of the city's new big and economical 3,440-hp dual-fuel engine.

The new Westinghouse switchboard was installed without any service interruption.



Nebraska's Largest Diesel

Sydney, Nebr., generates electricity at an operating cost of 2.9 mills per kwhr with a new dual-fuel engine

TO SYDNEY (population 7,000) goes the recognition of operating the largest diesel engine in Nebraska. This municipal power-plant engine produces electric power at a total fuel cost of 2.9 mills per kwhr. The unit, a Nordberg duafuel engine, has a sea-level rating of 3,440 hp at 225 rpm. Put on the line in November 1952, the new engine already had run more than 4,000 hours by June 8, 1953.

In seven months, the Nordberg produced 5,915,400 kwhrs. Total fuel consumption was 67,138,000 cubic feet of natural gas and 42,580 gallons of pilot oil. The gas has a low-heat value of only 815 BTU per cubic foot.

Diesel Replaces Steam

Sydney's power plant has switched gradually from steam to diesel operation over a 20-year period. The last of the steam generators gave way to diesels in 1949. At that time, the plant had four diesels, ranging from 480 to 1,980 hp, and was able to generate a total of 5,260 hp. However, 1950 introduced a period of transition. Oil was discovered in the vicinity that year, and the city began to grow rapidly.

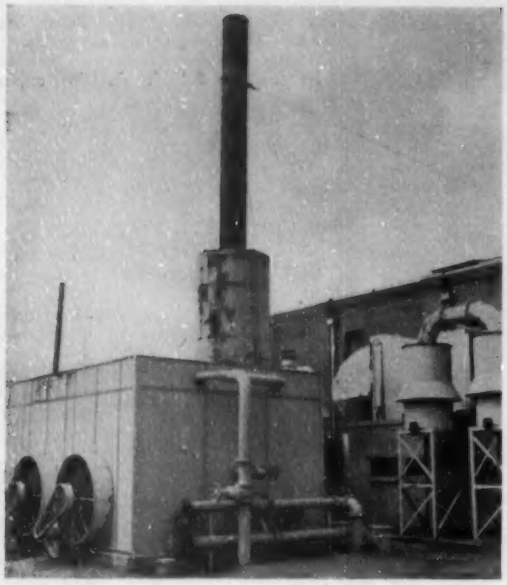
In November 1952, the city placed the 3,440-hp Nordberg duafuel on the line, providing additional capacity and taking advantage of the natural gas available in the area. The 480-hp diesel was removed. Moreover, two of the older engines were switched to gas. The plant now has three units totaling 4,685 kw that operate on natural gas and fuel oil, and the old 1,200-hp diesel of 832 kw capacity operating on straight fuel oil that is used for standby only.

The new 3,440-hp low-pressure engine is rated at 3,060 hp at the 4,091-foot altitude of the Sydney plant. It is a two-cycle, eight-cylinder, 21½-inch-bore by 31-inch-stroke unit that operates at 225 rpm with an integral engine-driven scavenging blower. It supplies power to a 2,160-kw Westinghouse generator which is rated at 2,700 kva. The generator produces a 60-cycle current at 2,400 or 4,160 volts and is equipped with a 30-kw Westinghouse exciter and a Woodward governor.

Gas Handling

Natural gas, costing 20.5 cents per 1,000 cubic feet, is supplied to the plant at 60 psi where it is reduced 20 psi, cleaned, and measured by a Rockwell gas meter before being delivered to each engine. The low-heat value of the gas is 815 BTU per cubic foot at 12.95 psi, the purchase base. The gas is admitted through intake valves in the cylinder head as compression starts and after the cylinder has been scavenged and filled with pure air.

After the mixture of gas and air is compressed to about 500 psi, pilot fuel oil is injected into the cylinder by the same pumps and nozzles which serve in full diesel-fuel operation. This pilot oil ignites from the high temperature present and, in turn, ignites the gas-air mixture. The engine is capable of operation on gas with a small quantity of pilot fuel oil, fuel oil only, or intermediate pro-



The noise-muffling Maxim silencer towers above the Diesel Service cooling tower and the American Air Filter unit.

portions of each fuel. In event of low gas pressure, the engine will automatically shift to fuel-oil operation.

The 3,440-hp Nordberg is equipped with safety devices which shut the engine down if fuel-oil or lube-oil pressures fail. An elaborate Alnor signal and control panel also warns of abnormal cooling water temperatures, gas pressure, air pressure, lube-oil pressure and temperature, and fuel-oil pressure.

Delivery of Fuel Oil

No. 2 fuel oil, costing 8 cents per gallon, is delivered at a Union Pacific siding to underground oil-storage tanks of 55,000 gallons capacity. The fuel oil is transferred to 500-gallon day tanks, then flows through a full-pressure type of oil filter before going to the pumps and injection nozzles.

Based on current fuel prices, the new engine is producing power for a fuel cost of only 2.9 mills per kwhr. The average heat rate to date is 10,270 BTU per kwhr which is considered satisfactory for the altitude at Sydney.

The dual-fuel operation results in less lube-oil consumption than was required on straight fuel-oil operation. About 7,200 hphrs are now obtained per gallon. Lube oil is supplied to the engine cylinders by separate visual force-feed lubricators. The lube oil from the crankcase is cooled by a Kewanee-Ross shell-and-tube type of heat exchanger. The oil also is passed through a Hilliard filter and a Honan-Crane purifier as needed.

Jacket water and oil-cooler water is circulated in a closed cycle through coils in a Diesel Service evaporative-type cooling tower located outside the building. Makeup water is treated by a Refinite zeolite-type softener to reduce the hardness. Because of the close proximity to the business district, good exhaust silencers are a must, as are air filters on the intake air supply. The engine uses a Maxim Silencer and an American air filter.

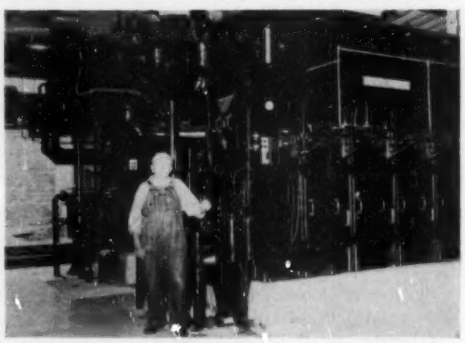
At the time of the last addition, a complete new Westinghouse switchboard was also installed in the plant and the old one removed. This was accomplished without interruption of service.

The plant is being operated on a sound financial basis and is showing substantial profits. At the end of the last fiscal year, a tally showed $75,000 in operations and maintenance reserve accounts, $41,000 in the light and power fund, and $39,000 in the active bond account. City Manager Virgil Knowles has reported that the financial picture is such that it should be possible to begin payment on bonds during 1954. If earnings remain as good as at present, the plant could be debt-free by 1960, although existing plans call for final payment in 1969.

Since 1944, when the city took over the electric utility, the peak demand has increased from 1,060 kw to a peak of 2,800 kw in December 1952, an increase of 164% or an average of 20½% per year. At the same time, the total generation has increased from 4,197,540 kwhrs to 12,114,750, or a 188% increase. The population has increased rapidly since 1950 when the census showed 4,900 inhabitants. Reliable estimates in June 1953 place the population in excess of 7,000, and it is growing daily. There are 2,253 electrical customers now being served in the city.

The power plant is operated under the direction of Superintendent Armour Boese. Fulton and Cramer, of Lincoln, Nebr., are the consulting engineers. Virgil Knowles served in the capacity of city manager at the time that the new dual-fuel engine was installed.

Pays Off Five Years Ahead of Schedule



Frank Sitherwood, chief engineer at the electric plant, beside his dual-fuel supercharged engines.

THANKS to the economical performance of its two dual-fuel engines, the municipal electric plant in Auburn, Nebr., cleared up its bonded indebtedness five years before the final payment was due. The operation of these engines enabled the plant to cut fuel costs more than half—to an enviable low of 0.00424 of a cent per kwhr.

Auburn, a city of 3,500 in the southeastern corner of Nebraska, installed its first power unit, a 960-hp Superior Model 80-S-8, in 1946. The second, a 1,440-hp Superior Model 80-GDEX-8, was put into operation in 1952. Both units are products of the National Supply Company of Pittsburgh, Pa.

Leaves Are No Problem

By JOSEPH LUSTIG
City Engineer
Janesville, Wis.

Janesville's cost-cutting team of sweeper, loader, and truck disposes of leaves and other debris in an orderly fashion when the sweeper operates on a favorable schedule.

Janesville, Wis., puts street sweeping on a city-wide once-a-week basis and ends the leaf-cleanup worries

NEXT to clearing streets of snow, the task of fall leaf-pickups is the street department's most difficult problem. While the public considers an abundance of deciduous shade trees a priceless asset, the street superintendent usually finds them a mixed blessing.

With the coming of fall, streets and pavements which have been kept meticuously neat, begin to look unkempt. Janesville, in common with other cities, has gone through all the evolutionary phases of leaf collection. We started by waiting until all the leaves had fallen and then proceeded to pick them up. We then experimented with periodic cleaning, using orthodox methods and some Rube Goldberg ideas. (Who can be sure that the Rube Goldberg solutions won't turn out to be the best?) Finally, we arrived at a final solution, which is the subject of this report.

Janesville is a city of 25,000 in southern Wisconsin. The city now has about 103 miles of traveled streets, of which 76 miles are paved with concrete or with a bituminous wearing surface. About 13 miles have a macadam base with a seal coat of road oil and a fairly stable surface.

14¾ Miles of Paved Streets

In 1924, the city began to operate an Elgin sweeper over its 14¾ miles of paved streets. At this time, the program of street cleaning involved sweeping 3¼ miles of streets in the business section each night, and the remaining 11½ miles of paved streets at least each week. The fall and spring cleanups of other streets was effected by whitewings who cleaned gutters with shovels and loaded the piled debris manually into trucks. The total cost of sweeping the streets ran as follows:

Street sweeping	$3,100.65
Spring and fall cleanup	2,396.46
Total	$5,497.11

Increased Cleaning Needs

In 1940, the same sweeper was still in use and, by that time, the streets requiring cleaning had increased to 56 miles. The total cost of street cleaning, with the same sweeper and the removal of sweepings, now totaled a new sum:

Street sweeping	$3,167.56
Spring and fall cleanup	1,026.71
Total	$4,194.27

Note that the total cost of street cleaning dropped by 25% during this period. The increase in paved street mileage that could be mechanically cleaned was responsible for this reduction.

During 1940, the city purchased a new sweeper which replaced the 16-year-old unit that the department had been using, but the pattern of street-cleaning remained the same. The idea of "let them fall and then pick them up" was still being followed, except that various pieces of mechanical equipment were being used to collect and bunch the leaves in piles so that small mechanical loaders could be used for loading the leaves into the trucks.

In 1950, street-cleaning costs ballooned 300% while the paved street mileage increased to only 68⅔ miles. The cost of mechanical sweeping and the removal of the sweepings amounted to $8,884.80, while the cost of cleaning the leaves from the streets in the fall and spring amounted to $4,328.08. Our street-cleaning program that year totaled $13,212.88. By 1951, the cost of cleaning the same mileage of streets was inflated to $15,600.57.

Inadequate Equipment

By this time, one sweeper had become inadequate for the job. Outlying streets were being swept but once or twice a season. Fall and spring cleanups had become excessively expensive because of the accumulation of leaves and dirt which was the result of infrequent sweepings.

A study of street-cleaning procedures disclosed that the neat appearance of certain streets was due to their being swept at least once a week. Leaves had not been permitted to accumulate; the weekly sweeping removed them almost as quickly as they could fall in quantities that would make the streets look untidy.

In order to improve the program, the city then purchased a second sweeper, putting it into use in the

spring of 1952. We then established a new sweeping schedule that called for the sweeping of every paved street at least once a week. Both sweepers were also equipped with wide leaf brooms which push the leaves into piles for easy pickups.

To reduce the cost of removing the sweepings, the city purchased a dump truck with an outsize box large enough to receive the leaves as they were being loaded. The box selected measures 12 feet long, 7 feet wide, and 3 feet high.

Two men, a truck driver and loader operator, follow the sweepers and load the leaves into the 10-yard body on the truck. The operator uses a Trojan 1¼-yard front-end loader to pick up the leaves. The long and high reach of the loader arms permits him to use the bottom of the bucket as a tamper for compacting the leaves in the body.

As we anticipated, the problem of falling leaves has now been solved. Weekly sweepings of all paved streets with a sweeper that is capable of picking up wet or dry leaves keeps the streets cleared of leaves almost as fast as they fall. By the time the sweeping season is over, all the leaves have been removed by the two sweepers and the loaders, and no hand cleaning or other special clean up procedures of accumulated leaves are necessary.

In the spring, after intensive sanding of streets for winter ice control, the sweepers are put into operation early in the season. They make short work of cleaning up the winter's accumulation of dirt and sand.

No Cost Increase

An interesting development of this new program of more thoroughly cleaned streets is that the cost of sweeping operations on 72 miles of streets in 1952 was only $15,138.57, compared to $15,600.57 for the previous year's unsatisfactory sweeping operation. In 1953, the majority of our 76 miles of paved streets were cleaned once a week by the two sweepers and the loading equipment at a cost of $16,373.28. We estimate that the sweepers traveled a total of 6,518 curb miles during the year.

In listing street-cleaning costs, it should be pointed out that we include only the costs of operating and repairs. No annual depreciation allowances are made. It may be noted, however, that the first sweeper that the city purchased was used for 16 years. The second sweeper was purchased in 1940 and was still in use in 1953, but will be replaced in 1954.

We feel that a proper selection and use of sweeping equipment can solve the so-called leaf problem which seems to cause street-maintenance men so much concern.

More Work by the Tree Crew

By JOSEPH J. GACKENBACH
Superintendent of Parks
Allentown, Pa.

Allentown, Pa., equips its tree crew with a mist sprayer and finds that the crew can accomplish more and varied jobs

Two men and a mist spray accomplish more work more effectively than did the old three-man hydraulic crew in Allentown, Pa.

IT ISN'T the amount of work that causes problems in a well-kept park system. In Allentown, a good-sized city of 107,000 persons in eastern Pennsylvania, the trouble is caused by the fact that all this work has to be done at once.

Controlling insect pests and diseases that attack trees and shrubs are typical jobs for a park department crew. These tasks crop up during the warm months of the year when most park men are deluged with hundreds of jobs that require immediate attention. However, lacking proper equipment, a tree crew will be tied up interminably. Traffic often will be blocked; toxic and staining sprays create dangers to pedestrians and damage to adjoining buildings.

In the past, the Allentown Park Department has had a crew of three men operating a hydraulic sprayer on the streets, parks, and public gardens. The job seemed endless, and, at certain periods of the year, it was impossible to cover the required territory.

In 1951, we found a solution to these problems. In the spring of that year, we purchased a Farquhar Mist Sprayer and found that we have been able to do more work with two men than we ever had in the past with three. Moreover, the two-man crew found time to help out with the valuable mosquito-control program.

On one heavily traveled boulevard, a three-man hydraulic crew would take eight working days to cover the area. The two-man "mist crew," in contrast, covers the same street more effectively in 1½ days. The mist sprayer creates no traffic problem. In addition, it will operate all day on a single filling, whereas the hydraulic sprayer required refills every hour.

The mist sprayer also supplies the answer to a serious leaf problem that arose in the fall of each year on Allentown's championship municipal golf course. Fallen leaves blanketed the fairways to such a depth that golfers protested the loss of time spent searching for lost balls. Rather than purchase specialized equipment to remove the leaves, we run our mist machine up and down the fairways, blowing them into the rough where they present no hazard. The crew starts the machine in the center of the fairway and blows them to the edge in two or three passes. This routine is usually followed twice a week during a period of the year when the sprayer has little else to do.

Modern Water Rates

PART II

THIS INSTALLMENT lists water rates used in ten more cities throughout the United States. Next month's listing will be accompanied by a a documented article, entitled "Why Use Water Meters?". This discussion will show the economies in waterworks operation that the use of meters has produced.

MERCED, CALIF.

Crocker-Huffman Land and Water Company

Rates Per Month

Size of Meter (in inches)	*Volume Per Meter* (in cubic feet)	*Minimum Charges*
⅝	1,200	$1.50 (min.)
¾	2,137½	2.25
1	3,100	3.00
1½	6,667	5.00
2	13,333	10.00
3	20,000	15.00
4	26,667	20.00

Metered Rates (for quantities above minimum scale)	*Charges* (per 100 cubic feet)
Minimum to 2,700 cubic feet	$0.08
Over 2,700 cubic feet	.075

Flat Rates Per Month

Type of Service	*Charges*
Family dwelling unit	$1.00
Each toilet	.30
Each bath	.30
Additional dwellings on same service connection	1.00
Lawn irrigation, per 100 square feet	.02

Miscellaneous Regulations

1. Company offers optional rate to users on any size of service of $.075 per 100 cubic feet, with a monthly minimum of $5.00.
2. Company makes separate fire-service charges.
3. No restrictions are placed on lawn sprinkling or air conditioning.

General Data

Population served	19,000
Services (19% metered)	4,924
Hydrants	408
Valves	467
Miles of mains	58
Supply—wells	
Treatment—none	
Storage facilities—1,000,000-gallon in elevated tanks	
Average demand	5.2 mgd
Plant capacity	20 mgd

Customer's Costs Per Month

Gallons	*Cubic Feet*	*Costs*
3,000	400	$1.50
5,000	667	1.50
10,000	1,333	1.66

Remarks

1. Rates have remained unchanged in many years.
2. Meters belong to the company and are placed at the lot line.
3. Bills are prepared without the use of automatic billing equipment.

GUY B. CORNELL
Water Superintendent

GLENS FALLS, N. Y.

Rates Per Quarter

Volume of Water (in cubic feet)	*Metered Rates* (per 100 cubic feet)
First 5,000	$0.16
Next 5,000	.10
" 5,000	.08
" 5,000	.06
" 280,000	.05
" 300,000	.04
" 400,000	.03
" 1,000,000	.02½
" 2,000,000	.02
Over 4,000,000	.01

Flat Rates Per Half-Year (incomplete)

Type of Service	*Charge*
Family use	$2.50
First tub or shower	2.50
Each additional	1.00
First toilet seat	2.50
Each additional	2.00
Church	2.50
School	5.00–$7.50
Restaurant	5.00– 8.00
Bar	12.00
Gas station	5.00
Store	2.50– 9.00
Boarders, each	.50
Roomers, each	1.00

Miscellaneous Regulations

1. Meter bills not paid within 15 days are assessed a 10% penalty; flat-rate bills not paid within 30 days, 1% per month.
2. Flat rates are doubled for service outside the city.
3. The city makes no separate charge for fire protection.
4. During extreme dry spells, lawn sprinkling is prohibited during the day and permitted only from 5 to 10 p.m.
5. Air-conditioning units larger than 3 tons are required to have a recirculation system.

General Data

Population served	22,000
Services (2% metered)	5,500
Hydrants	425
Valves	850
Miles of mains	64½
Supply—lakes	
Treatment—chlorination; copper sulphate	
Storage facilities—by gravity, 794,500,000 gallons; by pumping, 70,000,000 gallons; both from open reservoirs	
Average demand	4.5 mgd
Plant capacity	5.75 mgd

Remarks

1. Water is supplied free to other municipal departments only.
2. Department funds are diverted to the city general fund only when a large surplus develops.
3. The department owns all water meters, places them in a meter box at the lot line, or in building occupied by user; and checks them every five years for accuracy.
4. Bills are prepared on an Addressograph billing machine.

GOMER C. TRIPP, JR.
Superintendent of Water

GUIN, ALA.

Rates Per Month

Volume of Water (in gallons)	*Charges* (per 1,000 gallons)
First 4,000	$2.50 (min.)
Next 6,000	.60
" 15,000	.50
" 25,000	.40
" 25,000	.30
" 125,000	.20
" 100,000	.15
" 100,000	.12
" 400,000	.10

Miscellaneous Regulations

1. No restrictions on water use, either for lawn sprinkling or air conditioning.
2. No charges made either for public or private fire protection.

General Data

Population served	1,600
Service (100% metered)	422
Hydrants	38
Valves	84
Miles of mains	13
Source of supply—spring and two wells	
Characteristics of treatment—chlorination and iron removal	
Storage facilities—150,000-gallon elevated tank	
Average demand	66,000 gallons daily
Plant capacity	120,000 gallons daily

Customer's Costs Per Month

Gallons	*Cubic Feet*	*Costs*
3,000	400	$2.50
5,000	667	3.10
10,000	1,333	6.10

Remarks

1. Rates have increased 25% in the past five years.
2. Meters are owned by the municipality and placed at the lot line. Accuracy checks are made on request or on evidence from readings that meters are inaccurate.
3. Municipality provides no free water to anyone, and charges other municipal departments for water service.
4. No water funds are diverted to other municipal uses.
5. Bills are prepared by hand.

DAVID A. ESTILL
Water Superintendent

BUCYRUS, OHIO

Rates

Volume of Water (in cubic feet)	*Charges* (per 100 cubic feet)
Domestic (Per Quarter)	
First 10,000	$0.50
Next 30,000	.35
" 30,000	.25
Over 70,000	.12
Commercial (Per Month)	
First 5,000	.50
Next 25,000	.35
" 25,000	.25
Over 55,000	.12

Miscellaneous Regulations

1. Minimum charge is $5 per quarter.
2. A penalty of 10% is imposed for bills not paid

within 10 days; and water is shut off for bills delinquent 20 days.

3. For fire service, $12,000 is paid annually from the general fund.

4. No restrictions are placed on lawn sprinkling or air conditioning.

General Data

Population served 11,000
Services (99% metered) 3,650
Hydrants 337
Miles of mains 34½
Supply—river, and from two 225,000,000-gallon impounding reservoirs
Treatment—coagulation, softening with lime and soda, rapid sand filtration
Storage facilities—500,000-gallon elevated tank
1,600,000-gallon covered reservoir
Average demand ..... 2 mgd
Plant capacity ..... 4 mgd

Customer's Costs Per Quarter (residential)

(residential)

Gallons	*Cubic Feet*	*Costs*
9,000	1,200	$ 6.00
15,000	2,000	10.00
30,000	4,000	20.00

Remarks

1. Rates have remained unchanged for many years.

2. Water is supplied free to the municipal swimming pool only. All other services, including other municipal departments, are billed.

3. No funds are diverted to other municipal uses.

4. The department owns all meters; places them in the building occupied by the user. Meter accuracy is not checked according to any established schedule.

5. Bills are prepared without the use of automatic billing equipment.

ROY RILEY
Supervisor of Water Department

RUNGE, TEXAS

Rates Per Month

Volume of Water (in cubic feet)	*Metered Charges* (per 100 cubic feet)
First 30,000	$.067
Next 50,000	.03
" 150,000	.025
" 150,000	.02
Over 380,000	.015

Miscellaneous Regulations

1. The city makes no minimum charge.

2. No separate charge is made for fire protection.

3. No restrictions are placed on lawn sprinkling or air conditioning.

General Data

Population served 1,078
Services (92.5% metered) 330
Hydrants 19
Valves 2
Miles of mains 1.5
Source of supply—wells
Treatment—chlorination
Storage facilities—50,000-gallon elevated tank
48,500-gallon covered reservoir
Average demand ..... 63,000 gallons daily
Plant capacity ..... 216,000 " "

Customer's Costs Per Month

Gallons	*Cubic Feet*	*Costs*
3,000	400	$0.27
5,000	667	.47
10,000	1,333	.94

Remarks

1. Present rates represent an increase of 33⅓%.

2. Churches receive water at reduced rates.

3. No water funds are diverted to other uses.

4. Water department owns all meters and places them in a meter box at the lot line.

5. Bills are prepared without automatic equipment.

JOE A. ZAWARKA
Superintendent of Water

CUYAHOGA FALLS, OHIO

Rates Per Month

Size of Meter (in inches)	*Minimum Charges*
⅝	$1.20
¾	1.72
1	3.52
1½	4.52
2	5.65
3	7.72
4	10.81
6	15.98

Volume of Water (in cubic feet)	*Metered Rates* (per 1,000 cubic feet)
First 5,000	$1.90
Next 5,000	1.70
" 10,000	1.65
" 20,000	1.55
" 20,000	1.45
" 20,000	1.35
Over 80,000	1.10

Fire Service Per Quarter

Size of Connection (in inches)	*Charge*
2	$ 9.00
3	13.50
4	18.00
6	27.00
8	45.00

Miscellaneous Regulations

1. Light, water, and garbage bills may be paid on the same check if desired.

2. Quarterly rates are also in effect and are proportionately three times larger than monthly rates. Commercial users are billed monthly; residential users, quarterly.

3. Regulations are currently being prepared regulating lawn sprinkling and air conditioning.

4. The city also plans to adopt fluoridation, with hydrofluosilicic acid, as a dental-health measure. The cost of the program will be absorbed by the department.

General Data

Population served 38,000
Services (100% metered) 10,500
Hydrants 1,050
Valves 2,500
Miles of mains 120
Source of supply—wells
Treatment—zeolite softening and iron removal
Storage facilities—two elevated tanks total 600,000 gallons
270,000-gallon covered reservoir
Average demand ..... 3-5½ mgd
Plant capacity ..... 7 mgd

Customer's Costs Per Month

Gallons	*Cubic Feet*	*Costs*
3,000	400	$1.20
5,000	667	1.20
10,000	1,333	1.66

Remarks

1. Current rates were established in 1948 and represent a 20% raise over those used since 1939.

2. Schools, library, and other municipal departments receive water free.

3. No water funds are diverted to other uses.

4. Water meters are the property of the user. Most meters are located in the building occupied by the user, and are checked for accuracy every 10 years; commercial meters, every five years.

5. Bills are prepared on a National Cash Register automatic billing machine.

L. F. COOK
Superintendent of Water and Sewage

WAUKEGAN, ILL.

Rates Per Quarter

Volume of Water (in gallons)	*Metered Charges* (per 1,000 gallons)
First 10,000	$ .30
Next 50,000	.28
" 90,000	.25
" 100,000	.21
Over 250,000	.12

Miscellaneous Regulations

1. Minimum charge for water service is $2.70 per quarter.

2. Fire-service charge is computed at the rate of $4 per year per hydrant.

3. Rates are discounted 3 cents per 1,000 gallons for prompt payment.

4. Rates are raised 50% for those establishments which receive both water and sewer service. Minimum charge for both water and sewer service is $4.20 per quarter.

5. No restrictions are placed on the use of water for lawn sprinkling or air conditioning.

6. Fluoridation with sodium silicofluoride, as a dental-health measure, has been practiced since April 1952.

General Data

Population served 43,000
Services (100% metered) 9,700
Hydrants 1,000
Miles of mains 104
Supply—Lake Michigan
Treatment—rapid sand filtration
Average demand ..... 5.96 mgd
Plant capacity ..... 10 mgd

Customer's Costs Per Quarter

Gallons	*Cubic Feet*	*Costs*
9,000	1,200	$2.70
15,000	2,000	4.50
30,000	4,000	9.00

Remarks

1. Rates have not been raised in many years. Portions of the rates were reduced in 1941 and 1944, a total of about 20%. Sewer-service charge was initiated in recent years.

2. The water user owns the meters which are placed either in the user's building or at the lot line. Small meters are checked once every seven years; large, once each year.

3. Bills are prepared with the use of Burroughs automatic billing machine.

EDWARD J. TOBIN
Business Manager

MARTINS FERRY, OHIO

Rates Per Month

Volume of Water (in gallons)	*Charges* (per 1,000 gallons)
First 1,000	$ .25
1,000 to 2,000	.20
2,000 to 3,000	.15
3,000 to 10,000	.12
10,000 to 15,000	.11
15,000 to 25,000	.10
25,000 to 50,000	.09
50,000 to 75,000	.08
Over 75,000	.02

(*Continued on page* 187)

Urban Progress in Latin America

By ANATOLE A. SOLOW, *Chief, Division of Housing and City Planning, Pan American Union, Washington, D. C.*

The Changing Face of Venezuela

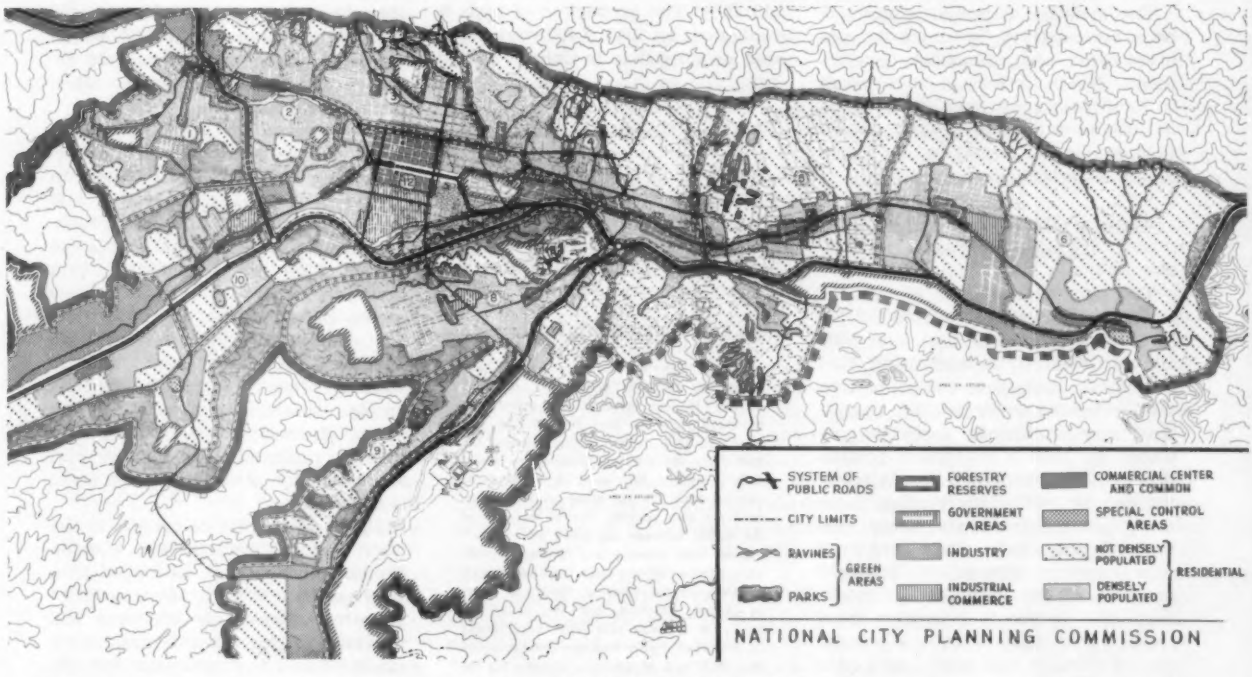
A CONSTRUCTION BOOM of unprecedented proportions has taken place in Venezuela and in a matter of a few years has changed its capital, Caracas, from a sleepy Spanish colonial town to a modern metropolitan city. This country, which has become the paradise for builders, contractors, and engineering firms, has under way the most sweeping program of public works ever witnessed on the South American continent.

From Oil to Public Works

Money is not as serious a problem in Venezuela as in other Latin-American countries, since a steady flow of oil supplies hundreds of millions of dollars yearly for a building program of highways, ports, water works, electrification, schools, housing, hospitals, and many other important private and public construction projects. In 1952, its oil production of 1.8 million barrels daily was almost nine times higher than the next largest South American oil producer, Mexico, and 17 times higher than that of Colombia, the third largest producer.

As if this were not enough, extraction of some of the largest iron ore deposits has recently been started by Orinoco Mining Company, affiliate of U. S. Steel, from Cerro Bolivar, an iron mountain known to contain some 500 million tons of high-grade ore. Orinoco Mining is said to have invested $400,000,000 in facilities, including the building of new towns, needed to work the deposit. Among other things, the Orinoco River has been dredged by Gahagan Overseas Construction Corporation of New York, and McWilliams Dredging Overseas Company of New Orleans, removing 31,000,000 cubic yards in 16 months, to permit ocean-going vessels to reach Puerto Ordaz, 175 miles upstream, and to carry iron ore to U. S. Steel blast furnaces near Philadelphia.

In 1953 national revenue was $690,000,000, which permitted huge expenditures for a country of approximately 5,000,000 people. In the last five years, one-quarter to one-third of the national budget has been spent annually on public works. Venezuelans like to call this their policy of "sowing the petroleum back into the land." In a hectic week of dedication ceremonies last December, some 450 public-works projects were inaugurated which had been completed during that year at a cost of approximately $265,000,000. These included such things as: 800 miles of highways throughout the country; completion of 39 new electric plants in 10 states, and the extension of serv-



Preliminary master plan of Caracas, prepared by Venezuela's National Planning Commission. Because of surrounding rugged topography the city's growth will be limited to the basic outline shown. Small numbers indicate location of neighborhood units.

The "University City" in Caracas includes a college, a hospital, a music center, and an Olympic Stadium, among other structures. Note in the background the terracing work which was done to cut usable residential land out of the mountains surrounding Caracas.

ices to 54 cities and towns; completion of 107 new water-supply systems in urban and rural areas, and extension of service to 18 towns; 63 new schools with capacity for 26,000 pupils; completion of 35 hospitals, clinics, and dispensaries; a new seaport at Paraguana; new airports; and numerous buildings practically completing the large University City of Caracas where the Inter-American Conference of the 21 American Republics was held in March of this year.

The upsurge in public works has been accompanied by much private investment and industrial development. North American investment in Venezuela grew from $232,000,000 in 1929 to a total of $993,000,000 in 1950, by far the largest in any single South American country.

Caracas Doubles Population Every 10 Years

The metropolitan area of Caracas has grown in population from 122,000 in 1920 to 380,000 in 1941, and 850,000 in 1953. It is interesting that in the year 1948, when the population was estimated to be 500,000, competent and optimistic forecasts predicted by 1960 a maximum population of 700,000—which was already reached by 1950. Immigration, especially from Europe and more particularly from Italy, stimulated by a liberal government policy, accounts for part of the increase. However, most of it is due to migration from rural areas. Since 1936 the population of Caracas has grown at a rate double that of the country as a whole.

What happens to a city that doubles its population every ten years? The built-up area of Caracas has expanded from 1,350 acres in 1938 to more than 15,000 acres in 1953.

Due to the rising standard of living, especially in the city, the number of motor vehicles has sky-rocketed. In the last eight years the total number of motor vehicles registered in the capital has increased from 12,300 to 44,300. Today, the capital boasts one passenger car for every 20 inhabitants. The proportion of taxis is prodigious. In 1948, 6,400 were registered, or more than in Chicago at that time.

Traffic Problem a Nightmare

Mountainous topography limits the expansion of the city along narrow valleys spreading out like fingers, and the old colonial pattern of square blocks and narrow streets in the center (as recorded in a plan of 1875, all streets of colonial Caracas were only 24 feet wide) is wholly inadequate for the traffic load. The resulting traffic and transportation problem has reached unbelievable proportions.

While private car ownership has increased, public transit facilities have diminished from one bus per every 515 inhabitants in 1938 to one per 780 in 1953. This limits severely the passenger-carrying capacity of public transportation. A transport study made in 1948 by Rockefeller's Ibec Housing Corporation reported that the waiting line at one of the principal bus stops continuously exceeded 400 people during the afternoon rush hour.

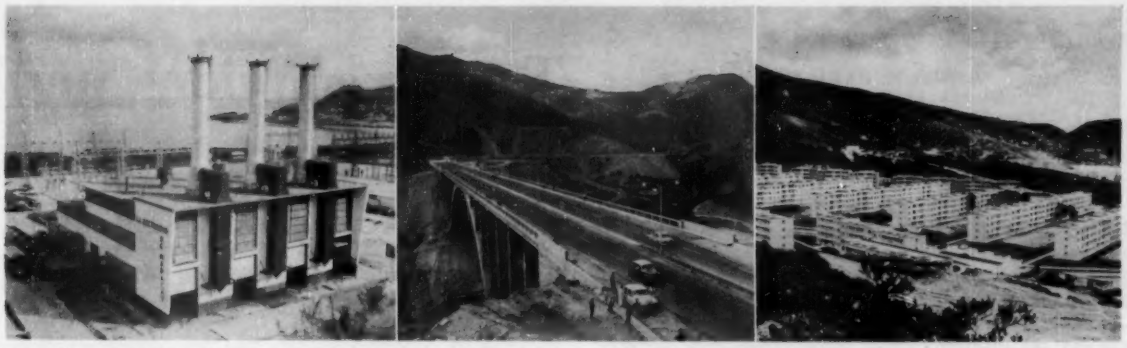
The government has taken vigorous and long-range measures to alleviate the traffic problem. Based on numerous technical surveys and studies and on a comprehensive highway and master plan for Caracas, the old street pattern is giving way to a series of broad avenues, limited-access high-speed roads, modern office buildings with underground parking, by-passes and arterial streets. Since the government has ample condemnation powers and plenty of money to compensate land owners, progress in demolition and reconstruction of old downtown areas is notable.

The most ambitious project is the huge central $300,000,000 Avenida Bolivar development, described in a previous issue of THE AMERICAN CITY.* It is now two-thirds complete and provides, among other things, a new underground bus terminal for 600

Hour-long traffic snarls in Caracas have given rise to many anecdotes. A newly arrived foreign ambassador apologized profoundly to the host for arriving two hours late at a cocktail party, blaming the traffic for the delay. "Dont worry about that," replied the host, a minister of cabinet rank. "I am often unable to attend my own cocktail parties because of the traffic between my office and home."

Since horn blowing is a severely punishable offense, drivers beat their hands desperately on the sides of their car doors to attract attention, but this is of no avail. It is even said that occasionally in mile-long traffic line-ups drivers abandon their cars to go to a corner cafe for a drink or to make a telephone call.

* See the July 1952 issue, page 124.



The modern 24,000-kw electric plant of La Cabrera (left), on the shore of the Lake of Valencia, built and operated by the Venezuelan Development Corporation. Bridge No. 1 (center) of the newly completed high-speed toll road linking Caracas to its coastal airport Maiquetia and to the seaport of La Guaira. "Coche" housing project built by Banco Obrero.

buses and parking for 1,600 cars.

Perhaps less spectacular, but more important for rapid traffic flow, is the "Autopista del Este." Running for a length of 9 kilometers of which 6 are completed, this limited-access and high-speed road connects the downtown business center with the high-class residential and suburban districts. Nine overpasses and cloverleaf intersections provide an even and rapid flow of traffic.

Another notable achievement is the Avenida Urdaneta, a new broadened thoroughfare in Caracas corresponding to New York's Park Avenue. Commerce has followed the spread of suburbs, and one can see new shopping centers, supermarkets, and suburban department stores similar to those in U. S. cities. Even Sears- Roebuck has a large modern store with ample parking a good distance away from downtown.

Superhighway to the Sea

Perhaps the most profound change, from a regional-metropolitan point of view, is being brought about by the new speedway linking Caracas to its coastal airport Maiquetia and to the seaport of La Guaira, where a modern new port protected by breakwaters, has been completed by The Frederick Snare Corporation. Thanks to one of the truly great feats of modern road building, driving time has been cut from over an hour on the old 19-mile, 300-curve road, to 20 minutes on the new 10.5-mile superhighway. In this way an isolated mountain city has been converted into a maritime capital, and the effects of this upon further development are far reaching.

Even more important, one of the most hazardous trips known in South America has been converted into a safe pleasure drive. This modern high-speed toll road is designed according to the latest standards: dual lanes, maximum 6% grades, and 36 gentle curves with a minimum radius of 918 feet. As compared to an average width of 22½ feet for the old road, the new highway is 70 feet wide with two 24-foot lanes, a dividing zone, and 8½-foot shoulders for disabled cars. Stupendous engineering feats were accomplished, such as two tunnels (one over a mile long), three bridges, one of which is over 1,000 feet in length, and is said to be the largest prestressed concrete structure in this hemisphere.

Work on the highway was started January 1950 after 6 years of surveys and studies and was completed in four years, just in time for the Tenth Inter-American Conference in March of this year. The *Autopista,* as it is commonly called in Venezuela, is said to be the most expensive for its length in the world ($6,-000,000 a mile). However, its tolls, according to latest figures based on estimates of 6,500 vehicles daily in both directions, will amortize the job in about 10 years, and its price is well worth paying in terms of the beneficial effect upon the development of the entire region.

Slum Clearance, Housing Projects and Hillside Shacks

While, as indicated below, the Government is endeavoring to promote slum clearing projects, adequate housing within economic reach of the majority of families is still the scarcest commodity in Venezuela, in spite of a tremendous private building boom and intensive Banco Obrero housing program.

According to the 1941 Census, last reliable figures available, 60.8% of all dwellings in the country were classified as slums. Private building in Caracas has concentrated on individual high-priced residences and luxury apartments. Highest jump in the cost-of-living index has been in rents, to 214 in 1952 over 1945. Consequently, the large mass of poor immigrants from rural areas must seek accommodations in the "ranchos" (slums) dotting the hillsides around Caracas —makeshift shacks without sanitation, overcrowded and structurally dangerous. It has been estimated that about 300,000 people of the 850,-000 live in these deplorable conditions, and one study indicated that the formation of such slums is exactly proportionate to the number of immigrants every year.

In recent years, Venezuela's national housing agency, the Banco Obrero, originally established in 1927 to make loans to individuals for home construction, has built thousands of modern dwellings. One of its first major undertakings in 1939, the El Silencio project, financed through an Export-Import Bank loan, was the clearing of a critical six-block slum area in the heart of downtown Caracas and replacing it by about 1,000 modern apartments.

Another and larger slum-clearance project, "Ciudad Tablitas," is now being completed. Two thousand slum dwellings have given way to well-laid-out and economically designed walk-up apartments rehousing up till now 7,500 people, and providing playgrounds, shopping centers, and other community facilities. Nor is this housing program limited to Caracas.

Based on the 1950 population census, technicians of this Banco have elaborated a national housing plan to cover all major cities of the country, such as Maracaibo, Valencia, Maracay, Barquisimeto. The Banco's construction rate has been stepped up from an average annual rate of 1,152 dwelling units in 1946 to 3,112 in 1952. Between 1945 and 1953, 14,512

(*Continued on page* 179)

Tax Exemptions and

From a compilation prepared by*

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Director of Washington Office
The American Municipal Association

MUNICIPALITIES ARE NOT EXEMPT from federal taxation as a matter of course. Constitutional or statutory action is necessary. The constitution exempts them from certain taxes, statutes from others. On some taxes municipalities are exempt only by claiming exemption in a certain manner. From some taxes they are not exempt.

This article sets out the various federal taxes from which municipalities are exempt and also those for which they are liable, and describes procedures by which exemption claims have to be made, in those cases where exemption is not automatic. While the Internal Revenue Service asserts the right to collect some taxes against proprietary functions, no clear line has been drawn between proprietary and governmental functions.

INCOME TAX

Local government units do not have to pay federal income taxes. Municipal enterprises, including electric plants, waterworks, gas plants and other city-owned utilities, are likewise exempt.

Municipalities are charged with the duty, however, of withholding the income tax on compensation paid to their officers and employees and remitting it to the Internal Revenue Service. The tax is not upon the municipality, but upon the individuals in its employ.

Business income or income from municipally owned colleges or universities unrelated to the primary purpose of the institution is subject to the federal corporate tax. This includes any income from any corporation which is wholly owned by a municipal college or university. Any trade or business owned by a municipal college or university which is not substantially related to the religious, charitable, scientific, literary or education function of the institution is subject to the tax.

RETAILERS' EXCISE TAX

Municipalities are exempt from the taxes known as retailers' excise taxes. To establish the right to exemption the authorized officer of the municipality must advise the retailer prior to or at the time of the sale that the article is for the exclusive use of the municipality.

The municipality must supply to the retailer a separate certificate for each order or contract. Where this is impracticable, a certificate covering all orders between certain dates (provided the period does not exceed one month). The certificate is the same as the one used for manufacturers' excise taxes, except that the phrase in the latter reading ". . . "such fact must be reported to the manufacturer of the article or articles covered by this certificate" should be deleted and in its place inserted the phrase ". . . such fact will be reported and tax paid by me to the Director of Internal Revenue for the district in which the sale was made."

COMMUNICATIONS TAX

A tax is imposed on the amount paid within the United States for telephone, telegraph, cable and radio services or facilities. The following table shows the old and new taxes (which went into effect on April 1, 1954). Using this table, municipalities can compute their communications tax exemptions:

Item	*Old Rates*	*New Rates*
For each local telephone message	15%	10%
For each long-distance telephone message (over 24 cents)	25%	10%
Leased wire, teletypewriter, talking circuit or special service	25%	10%
Any wire and equipment service including news or stock quotation services, burglar or fire alarm service or similar service	25%	10%

Municipalities are exempt from the communications tax. No exemption certificate is required where the payment is made by the municipality directly to the company furnishing the services or facilities. If a bill for telephone, etc., includes the tax, the municipality should submit a blanket statement for the files of the public utility concerned, which will show the exempt character of the transaction and thus justify the non-collection of the tax. This statement will cover all future payments made under the same conditions.

In all other cases (which are rare in actual use) the right to exemption must be evidenced by a properly executed exemption certificate. A separate exemption certificate is required for each message paid for as a separate item. Where periodic payments are made a blanket exemption certificate (for a period not to exceed one month) may be accepted as evidence of the right for exemption.

MANUFACTURERS' EXCISE TAX

Most federal excise taxes are upon the manufacturer rather than on the retailer or ultimate consumer. In most cases, the product becomes tax exempt only when it reaches the municipality or other exempt consumer. If the ultimate sale is to an exempt consumer and the exempt consumer files with its vendor the proper exemption certificate, the exemption certificate can be routed back to the manufacturer, who can secure a refund.

The tax is on the manufacturer's sale price and not upon the retailer's. Therefore, when a municipality purchases from a dealer, the manufacturer's price as well as the dealer's price must be divulged. Otherwise the municipality cannot ascertain what its exemption should be. The exemption is not without its difficulty. In some cases, the dealer avers that the price quoted does not include the tax. If the manufacturer is to receive a refund, however, it is necessary that the mu-

* The full text of Mr. Hamilton's compilation is available at 50 cents, in April 1954 publication *B.J.M.* of The American Municipal Association, 1313 E. 60th St., Chicago 37, Ill. It includes a table of articles commonly used by municipalities, showing the old excise taxes and the new rates which went into effect on April 1, 1954. Also included are the forms of exemption certificates for excise taxes and for taxes on transportation and communications.

Liabilities of Municipalities

nicipality file an exemption certificate with the vendor.

To claim the exemptions on manufacturers' excise taxes, the exemption certificate should be placed with the seller at the time the order is given or when payment is made. Purchase orders should clearly state that the amount of tax will be deducted from quoted prices unless allowance is made in the quotation.

With reference to tires and tubes, the following should be noted. If the tires and tubes are purchased separately, they are tax exempt to the municipality. If they are purchased on a motor vehicle, they are not tax exempt. This is so even though the vehicle itself is exempt. Thus, the Federal excise tax must be paid on tires and tubes which are an integral part of a motor vehicle, although the municipality is entitled to exemption on the vehicle itself and on the tires and tubes when purchased separately.

Municipalities are not automatically exempt from the federal excise taxes. There must be proof that the purchase is by a governmental unit. In order for the manufacturer to secure a return of the tax which he has already paid, he must have exemption certificates to prove he is entitled to the refund. Various regulations of the Internal Revenue Service require certain types of certificates. They are not furnished by the Service. Purchasers who use the forms must supply them themselves. Sometimes vendors have supplies of forms. These certificates can be rubber-stamped, printed or mimeographed on separate sheets or cards to be furnished to the vendor.

The signature of the officers cannot be rubber-stamped or mimeographed or printed.

ADMISSIONS TAX

The federal tax on admissions is 10% —1 cent for each 10 cents or major fraction thereof of the admission price. The tax applies to the amount actually paid for admission to any place, except that if the admission price is less than 50 cents the tax does not apply. In addition, there are no federal admissions taxes to games between teams composed of students from different elementary or secondary school (such as in "bowl" or "Shrine" games), where the profits inure to the benefit of hospitals for crippled children. There is also no federal admissions tax on games composed of students from two different schools. There is no federal admissions tax on admissions to college or university athletic events, during the regular athletic season. There is no federal admissions tax to non-profit museums or planetariums. There is no federal admissions tax on admissions to civic theaters provided the performers are amateurs.

There is a federal tax of 20% on admissions to horse and dog racetracks.

Admissions charges and fees to swimming pools, bathing beaches, skating rinks and other facilities providing physical exercise operated by municipalities are also exempt from the admissions tax. The proceeds from the operation of such places for physical exercise must inure exclusively to the municipality. Places for dancing are not considered places of "physical exercise."

Municipalities are exempt from the federal admissions tax with respect to admissions to affairs where the proceeds inure to eleemosynary organizations which are supported in whole or in part by municipal funds, national guard organizations, and police and fire department auxiliaries, together with any retirement, pension or disability funds maintained for the members of police or fire departments and any fund established for the benefit of the members thereof.

UNEMPLOYMENT COMPENSATION

The officers and employees of a municipality are not under the federal unemployment tax act. Municipalities do not have to pay the unemployment contributions and they do not deduct any unemployment compensation contribution from the compensation of their officers and employees. Arizona, Florida, Kentucky, Maryland, Nevada, Tennessee, and Washington permit municipalities to come under the tax. It is not compulsory in any state, however. No cities in the states which have permissive legislation have come under the tax.

TAX ON TRANSPORTATION OF PROPERTY

The excise tax on the transportation of property, other than coal, is 3%. Municipalities are exempt from the tax. This applies to any public carrier that has to collect the tax. No exemption certificate is required. The exemption is evidenced by the shipping papers. If the shipping papers show the consignee to be a municipality, the tax does not apply. If the shipping papers do not show that a municipality is consignor or consignee, the tax is collectible by the carrier unless the charges are paid directly to the carrier by the municipality. This exemption applies to any agency of municipalities including utility departments.

Upon coal the transportation tax is 4c per short ton (which applies only with respect to the first transportation of coal for hire).

When a municipality enters into a contract for a public improvement for which the contractor may have to purchase and cause to be shipped materials to be incorporated in the improvement, the municipality may authorize the contractor to direct that the material be consigned to the municipality in care of the contractor. This will exempt the shipment from the tax. This applies only to materials which will become a part of the improvement. It does not apply to machinery, spare parts, fuels and lubricants which may be used in making the improvement but which will not be incorporated in it and to which the municipality will not ultimately take title. The municipality must specifically authorize the contractor to order the material to be consigned to it in his care. He cannot do it on his own initiative. If materials subject to exemption are consigned to the

municipality, the contractor may pay the transportation charges but not the transportation tax. The governmental unit should notify contractors in advance of bidding that it will authorize shipments to be consigned to it in his care and that the contractor should take the tax exemption into account in calculating the bid.

TAX ON TRANSPORTATION OF PERSONS

A tax on the transportation of persons by rail, bus, boat, and airplane of 10% (formerly 15%) is levied on the price of the ticket. The tax also applies to sleeping-car accommodations, berths, etc. Municipal employees and officers when traveling on official business are exempt from this tax. An officer or employee instead of paying the tax should file an exemption certificate when he purchases his ticket. A separate certificate must be furnished with respect to each amount paid for transportation or for seating or sleeping accommodations furnished in connection therewith. Every person claiming exemption must be ready to identify himself as an officer or employee of a municipality.

When a government agency purchases transportation or facilities for a group of persons as in the case of an officer conducting a number of prisoners, or a group of officials attending a conference or meeting; one certificate covering the total amount may be accepted by the carrier. Where a municipality makes periodic payments for transportation or facilities furnished officers or employees, one certificate covering the total amount paid at any one time may be accepted by the carrier.

STAMP TAX ON DEEDS OR CONVEYANCES

Documentary stamps are required to be affixed to any deed, instrument or other transferring instrument whereby any lands, tenements, or other realty is sold, granted, assigned, transferred or otherwise conveyed to, or vested in, the purchaser or purchasers, or any other person or persons, by his, her or their direction. When the consideration or value of the interest or property conveyed, exclusive of the value of any lien or encumbrance remaining thereon at the time of sale exceeds $100 and does not exceed $500 the tax is 55 cents. For each additional $500 or fraction thereof additional stamps in the amount of 55 cents for each such fraction is required.

Municipalities, when acting in their strictly governmental capacity, have usually been exempt from the documentary stamp taxes. The exact point at which these taxes apply to so-called proprietary enterprises has never been precisely determined. The Internal Revenue Service holds that the tax may be asserted against municipalities under some conditions.

TAX ON SAFE DEPOSIT BOXES

A federal tax at the rate of 20% is imposed on the amount paid for the use of a safe deposit box. There is no statutory exemption from this tax for municipalities. However, the Internal Revenue Service has ruled that the tax does not apply to amounts paid for the use of safe deposit boxes by municipalities. No certificate is required.

FOREIGN FIRE INSURANCE POLICIES

There is a stamp tax on foreign fire insurance policies, meaning policies written by a company from a foreign country. The same general statement applies to exemptions from this tax, as to the stamp tax on deeds and conveyances.

TAX ON BOWLING ALLEYS, BILLIARD AND POOL TABLES

A tax of $20 per year, payable by stamp, is levied on each alley and each table maintained for use. The tax year begins July 1 and ends June 30, following. Persons commencing business after July pay a proportionate rate of the annual rate. Pool and billiard tables maintained by hospitals where no charge is made for their use are exempt. The tax is not asserted against a municipality for the operation of bowling alleys, pool or billiard tables used in its governmental capacity. Liability is incurred, however, where the operation by a municipality is a proprietary function.

EXCISE TAX AND SPECIAL TAX ON WAGERING

The federal excise tax on wagers and the occupational tax of $50 per year on each person who is liable for the wagering tax or who is engaged in receiving wagers for or on behalf of any persons, are two taxes directly related to municipal crime prevention programs. The excise tax is payable monthly and is equal to 10% of wagers. The occupational tax is payable once a year.

If any person liable for these taxes does not pay them, he has violated a federal statute and consequently is subject to the penalties prescribed for such failure. If, on the other hand, he purchases such a stamp as required by federal law, municipal law-enforcement officials will find it easier to discover such persons and determine whether such business is legal under municipal or state law. Each person who pays such a tax must file a form showing his name, address, place of business, names and addresses of his agents or employees. Each person who accepts wagers on behalf of another person must also file a form 11-C, giving his name, residence address and also the name and address of each person on whose behalf the wagers are accepted. Such stamp, issued by the federal government, is not a license or permit and affords no protection from prosecution for violation of municipal or federal or state law. The District Director of Internal Revenue keeps in his office, for public inspection during office hours, an alphabetical list of the names of all persons who have paid special taxes within his district, showing the time, place, and business for which such taxes were paid.

CERTAIN NONEXEMPTIONS

Municipalities are not exempt from payment of that part of the purchase price which includes stamp taxes on playing cards, fermented liquors, distilled spirits or sparkling wines, chewing or smoking tobaccos, or cigarette papers. Municipalities must also pay the federal tax on sugar and imported oleomargarine.

REFUNDS

In those cases where municipalities have erroneously paid one or more of the federal excise taxes from which they were exempt, they have four years from the date of purchase to file for refund of such taxes as have been erroneously or illegally paid. To obtain a refund, the municipality should submit an exemption certificate for each item on which such tax was paid, accompanied by documentary evidence that the exemption had not previously been claimed or granted. Such evidence may be copies of invoices, shipping papers, records, affidavits, etc. The Internal Revenue Service will supply the kind of form on which the seller may claim reimbursement for amounts unnecessarily paid by municipalities.

Cleveland police lock and leave their car to make their rounds on foot, with half an eye on the cruiser. If the red light on top goes on, they return immediately and call the dispatcher.

This University Heights (Cleveland, Ohio, suburb) ambulance is used most of the time within the suburb. In an emergency it becomes a part of a 500-car centrally directed police group.

Systematic Criminals vs. Pushbutton Police Protection

HOW CLEVELAND, OHIO, abolished precinct stations and loaded its foot patrolmen into police automobiles was a big story told by the then Director of Public Safety Eliot Ness, in the November 1939 issue of THE AMERICAN CITY. Since then, in Cleveland, as in other cities where the foot patrolman was practically discontinued, he has been missed.

How to have a foot patrolman and a radio-car officer all in one was solved to quite a degree by Thomas E. Story, Superintendent of Communications of the Cleveland Police Department, and made practical by the radio-recall equipment now available. A classic incident on a night in January 1952 proved its value to Cleveland.

The story is told of how the Cleveland police night-shift radio dispatcher received a call for help from a team of six patrolmen which had flushed a covey of 12 professional safecrackers and was finding them too big a haul to handle. The dispatcher pulled patrolmen out of all-night restaurants, off door-checks down dark alleys, out of taverns where they were looking for liquor-law violations, from points all over the city whether they were in their cruisers or not. Within five minutes, he saturated the gunfight neighborhood with 30 policemen. Within a few minutes more, he was coordinating four separate pursuits simultaneously. All 12 safecrackers were captured.

The System

The gang consisted entirely of experienced criminals. Each had a specialty and all worked together and figured they were out of reach. They would break into a place of business, take out the safe and be gone in seconds. They might break into three or four places in one night and the safes they took were always loaded. The men who cased the jobs were as efficient as the rest. The safes were stored in a warehouse and, at intervals, the gang met to break them open and split the proceeds. The opened safes were dumped after the meeting.

After a year of investigating, the burglary detail set up a "stake-out" in the neighborhood of the warehouse. For three and a half weeks two detectives with a Motorola "Handie-Talkie" portable two-way radiophone watched. When a couple of trucks pulled into the warehouse driveway in the middle of the night, the watching detectives summoned their colleagues. The police drove into the driveway behind the trucks only to see the 12 men burst through the warehouse doorway and scatter among the surrounding buildings. As soon as the detectives realized how badly they were outnumbered, they sent that radio message.

At that time of day—1:04 a.m.—a good proportion of the police in any town are likely to be out of their cruisers, possibly checking doors, drunks, accidents, or grabbing a sandwich.

The Pushbutton

The Cleveland radio network incorporates Motorola Quik-Call, a selective signaling system through which the dispatcher individually controls the red signal lights on top of the cruisers. Whenever Cleveland patrolmen have occasion to leave their prowl car, they park it where it will be visible to them at least at intervals if not constantly. If the radio-controlled red light turns on while they are away, they return immediately and call the dispatcher for instructions. On the night that the 12 safecrackers were caught, the dispatcher was able to saturate the warehouse neighborhood with policemen only because he could recall many of them to their cruisers.

Boston's Savin Hill Beach in 1904; and one of the city's modern swimming pools — the Joseph Lee Pool — half a century later.

Great Forces at Work For Civic Betterment

THE UPLIFT IN AMERICAN CITIES

GREAT FORCES AT WORK FOR CIVIC BETTERMENT—STREETS KEPT CLEAN EVEN IN SLUMS—ADMIRABLE PROVISIONS FOR HEALTHFUL RECREATION IN BEAUTIFUL SURROUNDINGS IN BOSTON AND OTHER CITIES—THE SPREAD OF LIBRARY FACILITIES AND FREE LECTURES —THE MOVEMENT FOR BETTER BUILDINGS—CITY ADMINISTRATION IMPROVING — AN INSPIRING SURVEY OF NATIONAL ADVANCE

FIFTY YEARS AGO this month the magazine *World's Work* carried in its issue of June 1904, a 17-page illustrated article, the title and subtitle of which are here reproduced.

The authors were the late J. Horace McFarland, then president of the American League for Civic Betterment (now the American Planning and Civic Association), and the late Clinton Rogers Woodruff, then president of the American Park and Outdoor Art Association, and secretary of the National Municipal League.

These two leaders in municipal and civic advance, in submitting their "brief of uplift and of optimism for better living in America, dealing principally with achievements and advances since 1890," reported that in all parts of the United States there are at work, with in-

creasing efficiency, great forces for civic betterment, for a truly "beautiful America."

Boston's Achievements in Public Recreation

The Boston region was accorded special mention for its park and playground system. "The first public playground in the United States," we read in this 1904 article, "was set apart in Brookline in 1872. Boston followed with the Charlestown playground in 1891, and now (1904) a score of spaces for growing, lusty, young Americans are provided. The totals are dramatic: Five miles of ocean front taken for all the people; 56 miles of walks maintained, as well as 34 miles of perfect parkway; 17½ millions of dollars expended in 27 years by Boston along for her system of parks, playgrounds, and connections! Note it, oh ye pessimists; set it over against the 'graft' that blinds your eyes to the good!"

As a result of further progress in Boston during the half century from 1904 to 1954, Frank R. Kelley, Chairman of the Park Department, is able to report that Boston now maintains and operates over 3,000 acres of park land. Included are 120 playgrounds and play areas, over 100 public squares, 10 large parks, 75 small parks, 15 recreation centers and bath houses, 2 indoor and 2 outdoor swimming and diving pools, 2 solariums and 20 cemeteries.

The Boston Park Department operates and controls all the parkways, parks, and playgrounds within the confines of the city, except for some few special areas maintained by the Metropolitan District Commission.

Metropolitan District Serves 38 Cities and Towns

The Metropolitan Parks District was established in 1893 and the Commission now holds more than 13,000 acres of public reservations, parks, boulevards, and beaches in 38 cities and towns in the Greater Boston Area.

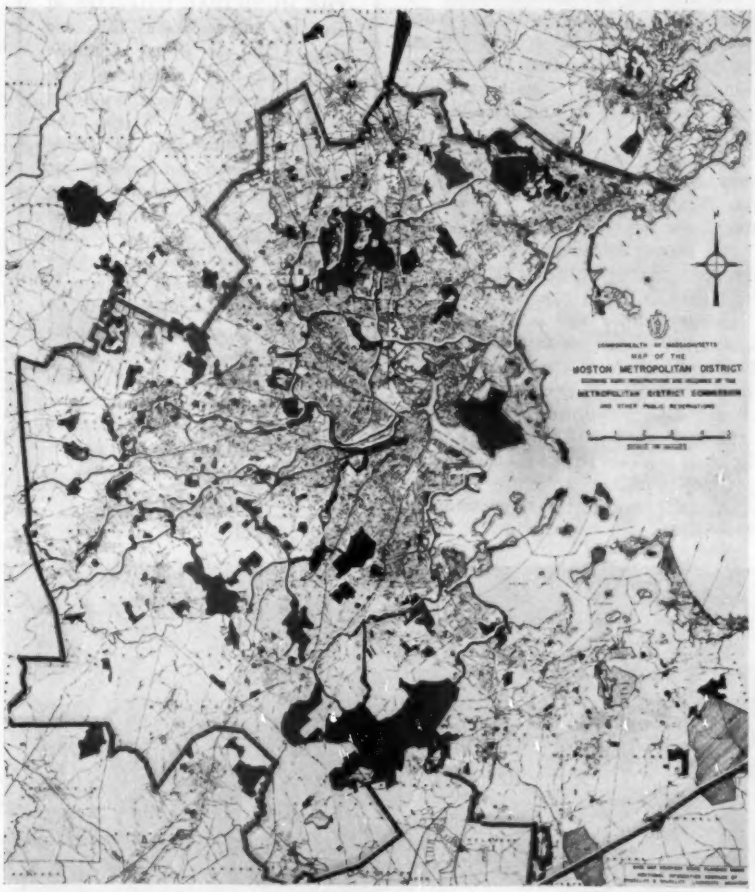
THE AMERICAN CITY is informed by Nelson Curtis, Secretary of the Metropolitan District Commission, that more than 135 miles of parkways restricted to pleasure vehicles are maintained by the Commission. Controlled also by the Commission are 14 miles of seashore and 63 miles of riverbank, on which 5 major and 6 secondary bathhouses are maintained; also 145 miles of trails and bridle paths are available in suburban wooded areas in which picnic facilities are provided.

Overnight camping facilities are maintained in the Commission's reservations by such organizations as the Boy and Girl Scouts, the Y.M.C.A., etc. The Commission has provided 40 dinghies and a boathouse for a public sailing program in the Charles River Basin.

Band concerts are played in a number of the Metropolitan Parks District public parks, and the Commission maintains the Hatch Memorial Shell on the Charles River Esplanade, where the Boston Symphony Orchestra plays a series of concerts each summer.

Many of the bathing beaches have had to be abandoned, writes Mr. Curtis, because of the pollution problem. However, these have been replaced by the five large metropolitan swimming pools now operated by the Commission. Two more pools will be opened to the public during 1954, and a legislative commission will conduct a study this year on the advisability of constructing additional swimming pools, skating rinks, and other recreational facilities in the Park District.

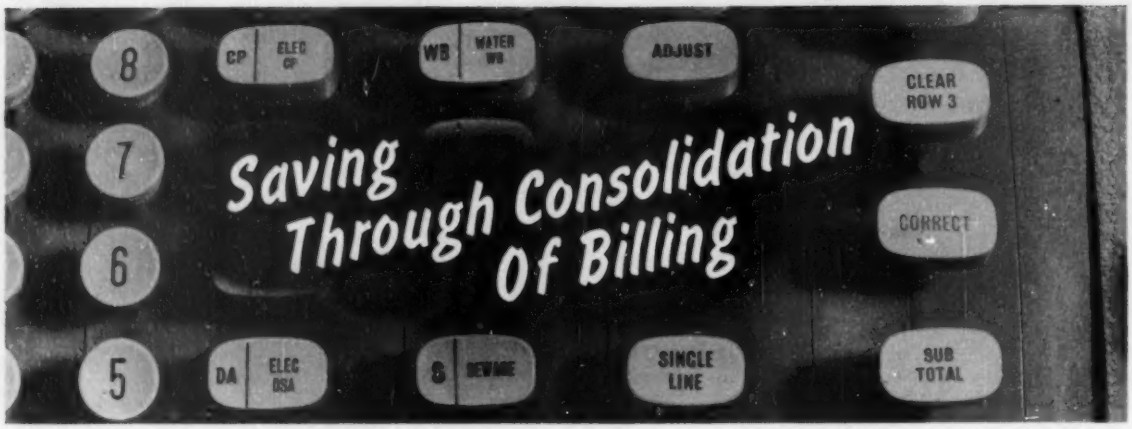
The idea is that a program for further development could be established to be carried out as the District may be able to finance it.



The Boston Metropolitan District in 1954, showing (in blue) the boundaries of the District and the Metropolitan District Commission's park and parkway reservations; (in black) municipal and state reservations; and (in gray) federal reservations.

"Not much else is more important right now than the sense of *community* in the world, in the nation, in the locality. . . . As a unifying force in the minds and hearts of the people, recreation makes a great contribution. Those who play together, sing together, hike together, make things together, attain in its truest sense a community of feeling. The sense of community begins right in the neighborhood as people share their joys and sorrows."

From a 1945 editorial by the late Howard Braucher, then president of the National Recreation Association.



Saving Through Consolidation Of Billing

By WILLIAM E. DEARMOND
Anderson City Utilities
Anderson, Ind.

OUR NEW accounting equipment saves more than $19,000 a year in operating expense, and has been a factor in reducing delinquent accounts from $128,000 to $54,000 in a single year. Uncollectibles, too, have been greatly reduced in the last twelve months.

When we assumed duties here, we found that Anderson (like many other cities) had water and sewage billing, and electric billing, set up as two entirely separate jobs. Several business-machine manufacturers were invited to look over our work and submit proposals for modernizing our methods.

The National Cash Register Company proposed that water and electric billing operations be consolidated, and that the customer receive one bill for both; they showed us how this could be done on their equipment.

Billing

All records are produced at the same time by machine—the bill itself, which consists of the customer's portion, the cashier's stub, a duplicate bill, and an accounting stub; the ledger card, showing all entries for electric, water and sewage charges; and the journal record.

All charges are precalculated by chart. The operator enters present and previous electric readings from the meter book. She then sets up the amount consumed (again reading from the book), on the *left* side of the machine's keyboard, and the amount charged on the right. She then touches any one of nine electric classification keys (see close-up of machine's keyboard in illustration). If the proper consumption has been entered, the machine will operate; otherwise, it "locks up."

As the proper key is touched, all records are writtten simultaneously. The amount of the charge prints on the customer's bill, cashier's stub, duplicate bill, accounting stub, ledger card, and journal. At the same time, the consumption prints on all but the cashier's stub.

In other words, the depression of this single key automatically prints all records in the correct column. Incidentally, there is no carriage on this machine, and all records appear in original print.

The operator enters the consumption and charge for water and sew-

THE MUNICIPAL UTILITIES of the City of Anderson, Ind., are managed by the Board of Public Works, which is a three-man, non-political governing body appointed by Mayor Noland C. Wright. The present administration has made sweeping changes in modernizing the offices and techniques during the first two years of its four-year term of office. Complete modernization of the offices and equipment has enabled Mr. William E. DeArmond, Office Manager, to reroute billings, combine bills for the several utilities on one card, and to expedite handling of the details with better service to the customer —at a saving for his city of more than $19,000 a year in mailing, delivery, printing and labor costs.

In Anderson, Ind., all incoming payments for utility bills are receipted by National remittance control machines, which are shown set into the counter in this behind-the-counter view of the Cashier's Section. The three machines are National "2,000's."

age in the same manner, by selecting the proper key, which in itself does all the rest of the work. She then touches the "Bill Total" key; the total prints instantly on all records and the bill is automatically ejected and stacked.

Monthly Output

We handle over 24,000 bills a month on three machines. Of these, 14,000 include water as well as electric, so that we are doing a job equivalent to sending out more than 38,000 bills a month on three machines. We have no difficulty, and no sense of being "rushed" in handling this volume; indeed, the volume could be increased substantially without the need for more equipment.

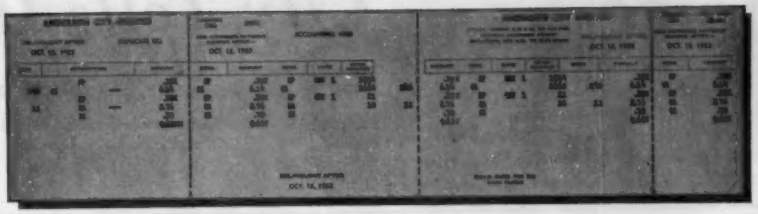
Billing totals are kept by route. We have about 50 routes, which are divided into 14 "sections," according to billing date. After a route is billed, adding machine tapes are run of the meter books in that route, and proved against machine totals.

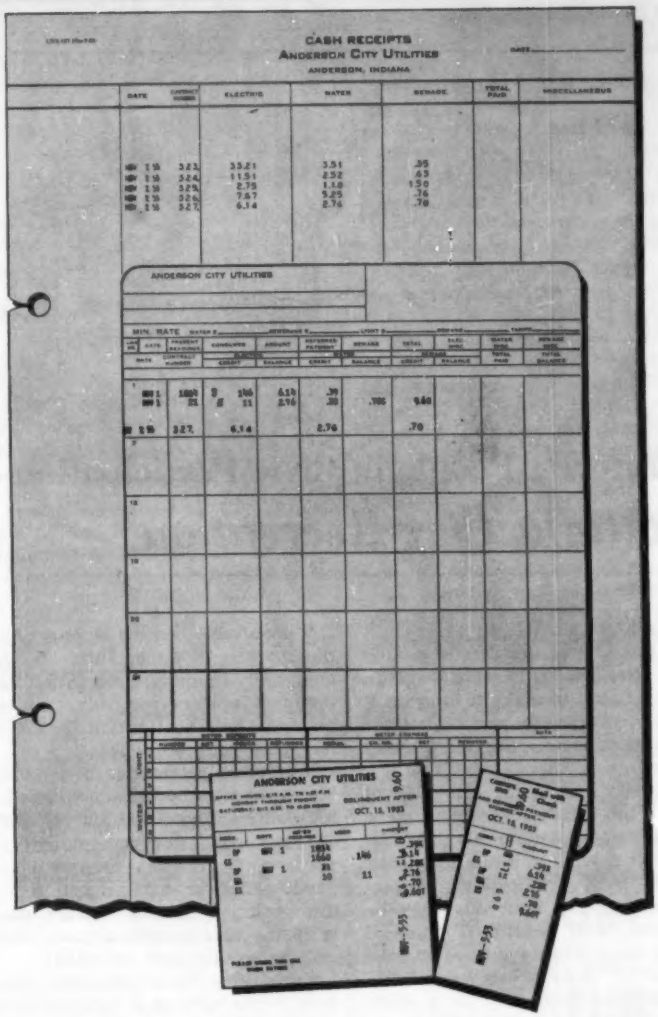
Cash Receipts

A glance at the behind-the-counter picture of our Cashier's Section shows the three machines set into the counter. They are National "2000's," with separate totals for Electric, Water, Sewage, Light Miscellaneous, Other Miscellaneous, Meter Deposits and Steam.

When a customer pays his bill, the machine "certifies" or prints the amount both on the original bill and the cashier's stub receipt, and at the same time it is added into the proper total or totals. This gives us complete control of all cash transactions at the window, provides separately accumulated totals for later posting, and makes proof a simple matter.

In remodeling the building we provided a drive-in window where customers drive up and pay bills without leaving their cars. People like this service and, for many, it encourages prompt payment.





Four-part bill, ledger card, and journal are created simultaneously. Posting of cash receipts is done directly from duplicate bill or from the customer's mailed-in stub.

The cash posting is accomplished by two National "Class 31" carriage-type machines. Posting is done directly from the receipted bills, and proved to totals received from the "2000" machines. The customer's individual ledger card and the Cash Receipts Journal are created simultaneously.

Payroll for our 275 to 290 employees is done on the "31" machines, and we are adding Accounts Payable.

By consolidating electric and water bills into one bill only, we have saved over $500 a month in mailing and delivery costs alone. Printing costs have been cut by about $350 a month. Personnel on this job has been reduced, and we are operating with one less machine, thus saving its cost plus the cost of its maintenance.

These changes are appreciated by our customers, and we accept their increased usage of power as an agreeable expression of their appreciation.

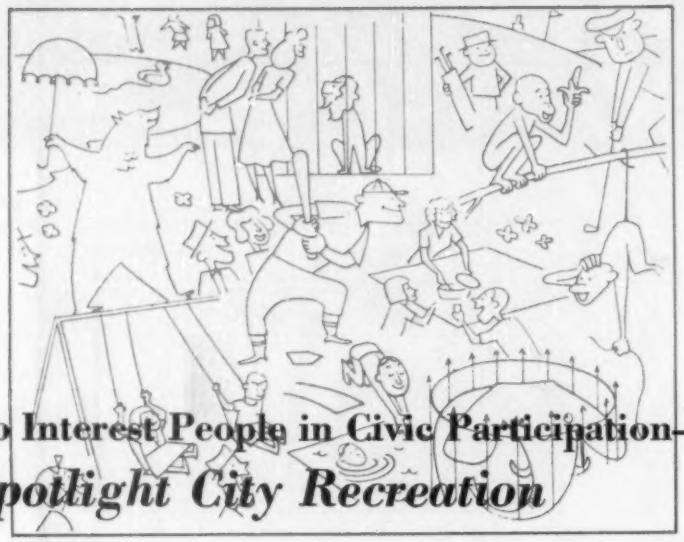
The author and Mayor Wright.

Municipal
Public
Relations

City Tells Its Story

Edited by PAN DODD WHEELER

Executive Director, Government Public Relations Association



To Interest People in Civic Participation— *Spotlight City Recreation*

"LET'S PUT SPARK in the park," was the theme of the citizen groups which remodeled Lakeside Park in Oakland, Calif., to make it Storybook Land for youngsters and to attract thousands more to enjoy the municipal park.

Your city's concern, like that of Oakland, may be in attracting more people to use municipal recreation facilities. It may be in initiating a park program or in establishing a recreation department. Your city may be concerned with continued financial support for existing facilities or with marshalling support for new facilities. Or your goal may be a more general one: to draw divergent groups together in a program of municipal improvements and to give more people a chance to actually participate in a city government activity.

Whichever objective is your city's, the months of June, July, and August, and "municipal recreation" are time and topic, respectively, on which to focus public attention in the interest of your objectives.

Municipal recreation is a strong magnet that can pull persons of varying political and social allegiances to the municipal government. In the process of planning for, or actual participation in, a municipal recreation program, citizens who are usually apathetic to municipal government may be aroused and activated.

Recreation Is Everybody's Business is the title of a publication issued jointly by the General Electric Company and the National Recreation Association. The many "publics" of a city may have different reasons for their interest in the city recreation program—but each does have a stake in it. Indicative of the appeal recreation has for many different groups is the municipal recreation report of Altoona, Pa., which acknowledges the assistance of 40 groups, ranging from a "Committee on Aging" to the "Keystone Bakers Association."

Municipal recreation has plus values favoring newspaper, radio, and TV coverage: competition (in sports, exhibits, contests); human interest (because of the human element primary in recreation); and widespread appeal (since the program touches people of all ages and positions). This suggests that the commercial mass media will be cooperative in spreading the city's recreation program.

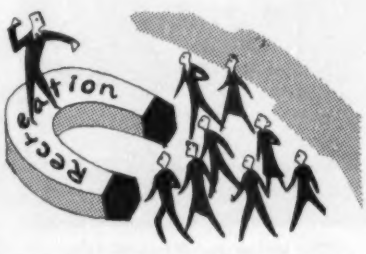
Traditionally, municipal recreation is a function of the city government to which organized groups of citizens have contributed time, energy, and money. Cooperation between the city and citizen organizations on recreation not only boosts the specific program, but may create channels for work by city officials and organized groups on other community matters.

Citizen committees, widely representative of community interests, are necessary in a park and recreation movement. *Recreation Is Everybody's Business* suggests work for these committees: finding out what a community needs and its legal and economic ability to meet these needs; dramatizing benefits of good recreation; getting out a favorable vote (if a vote is involved); and following through by keeping a continuing committee to give recreation the support it needs to expand in step with community growth.

How MPR Can Work

Ways in which cities over the country have spotlighted municipal recreation to accomplish certain objectives follow. These public-relations techniques are adaptable to similar objectives in other cities.

Informing Referendum Voters (Denver, Colo.) about municipal recreation was done with a two-page folder explaining how the proposed bond



issue of $2,100,000 would be used, and with a slogan: "A Vote for One (bond issue was first on the ballot) Is a Vote for Fun."

Invitations by TV (Toledo, Ohio) were issued on the city's weekly TV show recently by Welfare Director Arthur Gratop. Mr. Gratop asked Toledo people to the city's 3,000 acres of park land, its 22 playgrounds, and 53 play areas. He urged groups of 40 or more, desiring to use a park for picnicking, to contact the park keeper ahead of time so that the proper number of tables could be set up for the affair.

Variety for Appeal (Kingsport, Tenn.) has been successful in this town of 20,000. The citizen recreation board and a full-time director feature not only standard sports, games, and crafts, but also hold flower shows, doll contests, dance classes, and a craft-and-hobby fair. These events attract thousands who would not participate in sports or play.

Letting the Public Know (Maryland-National Park and Planning Commission) is important to this organization, which operates for some 20 communities. In 1953 the Commission, which has a public relations director, published a well-illustrated 25-year report detailing park and recreation activities; sponsored a park tour for 100 representatives of key civic groups; and held open meetings to encourage attendance of public and press.

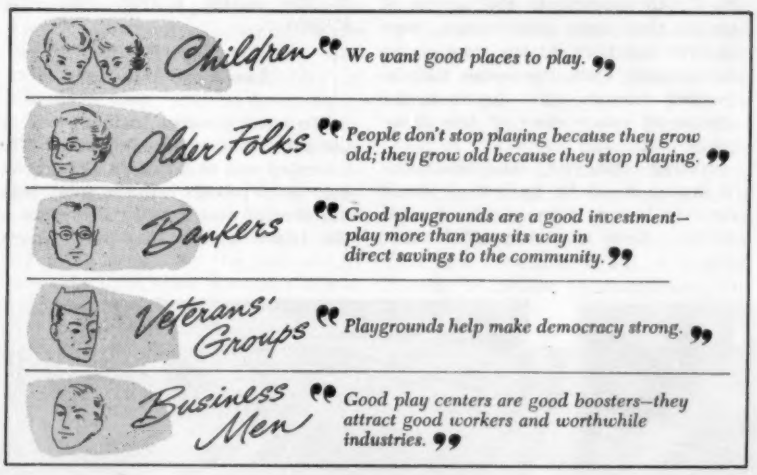
Winning Young Friends (Oakland, Calif., and Detroit, Mich.) and influencing parents was done by creation of the Storybook Land in the California city, already mentioned. The park is entered through the "Old Lady's Shoe," boasts a "Merry Miller" mill house big enough for small fry to explore, and has "Humpty-Dumpty" perched on a wall 60 feet long! Detroit attracts youngsters to its Children's Zoo by providing fairy-tale settings for the animals.

Spotlighting the Zoo (Denver, Colo.) is the objective of the Denver Zoological Foundation in publishing in color, picture, and narrative the story of zoo personalities, including such famous residents as Pete the Pelican, General the Buffalo, and Cleopatra the Monkey.

Increasing Swimming Pool Attendance (Alcoa, Tenn.) at the handsome municipal pool in this town of 6,500 has been done by opening the swimming-pool season with a beauty contest and by featuring a high-school band concert once a week. The contest is sponsored by the city and Chamber of Commerce and is directed by a local radio station. It draws a big crowd on opening day, gets people in the habit of "going to the pool." The weekly band concerts attract both swimmers and nonswimmers to the municipal pool in family lots.

Reporting to Citizens (Altoona, Pa.) was a preliminary to this year's Park and Recreation Board summertime program. The two-page newspaper report featured a "Recreation Scoreboard" which showed attendance figures at various events during the previous year. A baseball game chart pictured the financial status of the recreation operation.

Telling the Metropolitan Story (New York City) was a recent project of the Department of Parks, which published a handsome, tri-color report, 64 pages long, illustrated in the modern manner with maps, photos, and charts. The report covers 20 years—1934-1954. Data at random: 200,000 children were entertained by Park Puppeteers last year; golfers played 654,000 rounds on the city's ten 18-hole courses, and there was an attendance of 61,000,000 at municipal beaches last year—12 times the figure in 1934.


Children
"We want good places to play."
Older Folks
"People don't stop playing because they grow old; they grow old because they stop playing."
Bankers
"Good playgrounds are a good investment—play more than pays its way in direct savings to the community."
Veterans' Groups
"Playgrounds help make democracy strong."
Business Men
"Good play centers are good boosters—they attract good workers and worthwhile industries."

Remember—
A VOTE FOR
BOND ISSUE NUMBER
ONE
IS A VOTE FOR
FUN
Primary Election Day September 9
You are eligible to vote on bond issues if you pay personal or property taxes. You do not have to designate your party choice to vote on bond issues.

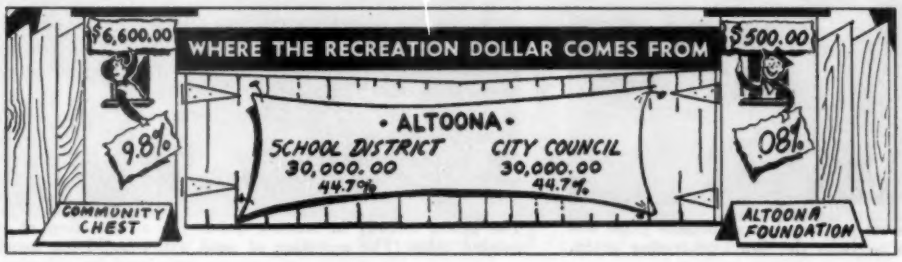


ILLUSTRATION CREDITS

BOOKLET, RECREATION IS EVERYBODY'S BUSINESS, GENERAL ELECTRIC CO. AND THE NATIONAL RECREATION ASSN.
FOLDER, JUST FOR FUN, DENVER, COLO.
REPORT, PARK AND RECREATION BOARD, ALTOONA, PA.

Fernandina Beach, Fla., develops a low-cost method of groin construction, utilizing local materials for

Beach Protection At Bargain Prices

By J. FLOYD GIBSON
City Manager
Fernandina Beach, Fla.

Cabbage-palm pilings, which were jetted into the sand at 25-foot intervals, form the foundation of the low-cost groins.

JUST as a city cannot afford to sit back and let its streets disintegrate, neither can a seashore municipality idly watch its beach erode. Streets must be repaired and built up by the most economical methods possible. Also, shore lines must be restored and built up, again without bankrupting the city's financial resources. In Fernandina Beach, we have discovered that not only do the principles of reconstruction apply to our streets as well as to our beach, but that the same equipment serves both.

Fernandina Beach has suffered from shore erosion. During the past 30 years, the sea has claimed 100 to 150 feet of shore line, forcing several ocean-front homes to be moved, toppling others, and undermining an old ocean-front road.

City Engineer G. R. Henderson first conceived of the idea that resulted in our bargain-priced beach protection. A few years ago, he traveled with our local Beach Erosion Committee to Wrightsville Beach, N. C., to investigate the action of groins that were constructed there in 1948 and 1949. At the time of the delegation's visit, the ocean had deposited enough sand between the groins to cover most of the structures.

Noting this, he concluded that if groins could be built that would survive two or three years of wave action, then the deposited sand would very probably do the rest.

As the result of this decision, the municipality approved an experimental Groin Construction Project, using city personnel, and under the direct supervision of the city engineer. Asphalt was supplied by a local construction company. The cost of the entire project was only $18,000.

Low-Cost Material

We used low-cost material for all the parts that we possibly could. The first step was to jet down 10-foot cabbage-palm pilings into the sand, leaving about 5 feet above the surface of the beach at the high-water mark,

A sand-asphalt embankment processed in a portable plant was placed over the pilings to form the beach-protecting groin.

The groin, already in service, quiets the wave action of incoming tides. The accretion of sand will rebuild the beach.

tapering them off until about 3 feet was left above the surface of the beach at the low-water mark. We placed the piles on 25-foot centers, beginning at the shore line and extending 225 feet to the low-water mark.

Over these pilings, we placed sand-asphalt mix heated to a temperature of about 300° F. This required a total of 346 tons of asphalt poured over each row of piling, and covering with 3 or 4 inches of the asphalt mix. The base of each groin measures about 5 feet. The groins were hand tamped, using a 9-inch-square tamper. A Caterpillar crawler tractor with a bulldozer blade, and a Caterpillar patrol grader, which would be used by our street crews, put the sand to proper elevation.

Along with the groin construction was placed an asphalt apron about 2 or 3 inches thick. These aprons extend out on either side of each groin for approximately 20 feet. The aprons prevent the sea from undermining the groins until the beach begins to build up. The apron extends around the seaward end of the groins.

Local Beach Sand Used

In designing the mix for the structures, we found that local beach sand was suitable for use in the asphalt mix. By using this material, we could set up the hot-mix plant within a few hundred yards of the project and thus reduce the transportation cost. We used AC-5 asphalt for the mix, which provided the necessary stability for the purpose intended. It was processed in a Cedar Rapids portable plant capable of producing 50 tons of mix per hour.

The groins are spaced 300 feet apart on the beach. We will have to admit that they do not particularly enhance the appearance of the beach, and prevent it from being used for driving. However, we hope that in the near future the accretion of sand will result in rebuilding the beach so that within three or four years the structures will be covered.

New Purification for Swimming Pools

AN INDOOR swimming pool is being built that will provide a new twist to conventional swimming-pool purification. The pool, which will cost $338,000, is being built for Lynwood, a city of 26,000 in southern California.

The pool will be 50 feet wide, 164 feet long, 12 feet deep at the center and shallow at both ends. It will be built of concrete and will be covered by a modern 25,800-square-foot brick-and-glass building, capable of serving a maximum of 810 persons. MacIsaac & Menke Company of Los Angeles are the builders. Brooks, Miller & Stetman, architects and engineers of Monrovia, Calif., are the designers.

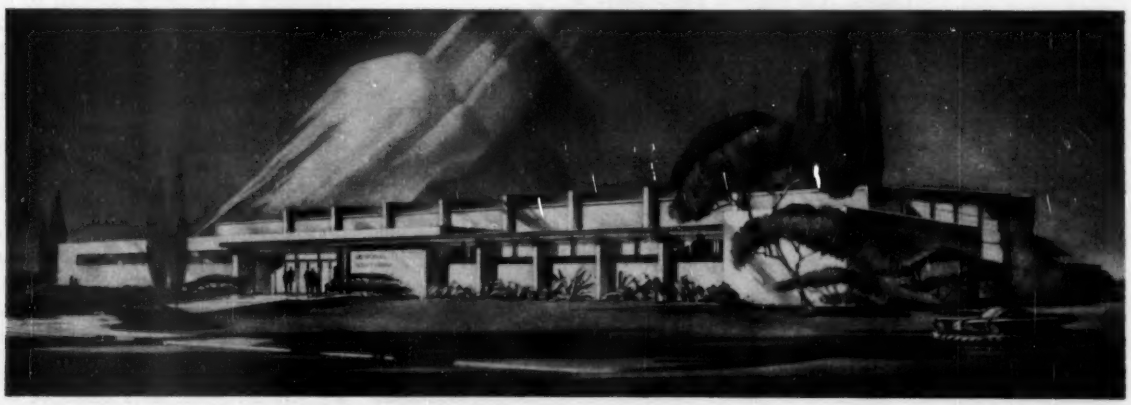
The point of departure from traditional methods is in the introduction of purified water into the bottom of the pool rather than at the top. Since most pollution is lighter than water, it can be skimmed off easily and continuously by the gutters. At the same time, since pollution sets in at the moment that swimming starts, and since any degree of pollution is spread evenly throughout the entire pool, a system of introducing purified water at the bottom eliminates so-called "dead" areas on or near the bottom.

Refilling the pool by feeding chlorinated water through fan-shaped nozzles placed on or near the bottom is the method by which the principle will be applied. As the polluted water, rising to the top, is skimmed off into scum gutters, it passes from there into covered water-collection troughs which circumscribe the pool. From there the polluted water drops into pipelines which are fed by gravity into underground detention chambers. From there it goes to the pumps, filters, and chlorinator. Diatomaceous earth filters will be used at the Lynwood pool. The filter is a product of the Sparkler Manufacturing Company which is located in Mundelein, Ill.

The inlets situated near the bottom, but actually on the exterior face of the pool wall, are designed to push the purified water along the surface of the bottom and toward the center.

At this point, a line of inlets placed along the center of the pool's bottom will add momentum to the upward circling action by sending their charges of chlorinated water straight upward. The combined action of these two sets of inlets will provide the outward skimming water action necessary for the constant skimming of the polluted water into the scum gutters.

An important reduction in the amount of vacuuming that is usually necessary has been accomplished by providing a suction action in the center line of inlets. When it is necessary to sweep the bottom of the pool, water will be forced out of the wall inlets along the bottom to the center line where it will be sucked in by a sweeping motion.



Designer's sketch of Lynwood's new natatorium.

The city operates its fill in sections that confine the work to a controlled area.

Although Bismarck was hesitant about adopting fill-and-cover because of cold weather temperatures, the city now reclaims wasteland by this type of sanitary disposal.

Cold Weather Is No Obstacle To Fill-and-Cover

Sanitary Fill Series, IX

By City Engineers Edward J. Booth of Bismarck, N.D. and Neal Bartholomew of Eau Claire, Wis.

The fill is complete, sealed off with 18 inches of cover.

Eau Claire, Wis., and Bismarck, N. D., solve the problems of sanitary refuse disposal by building a trench and ramp-type fill, respectively, despite the rigorous northern climate

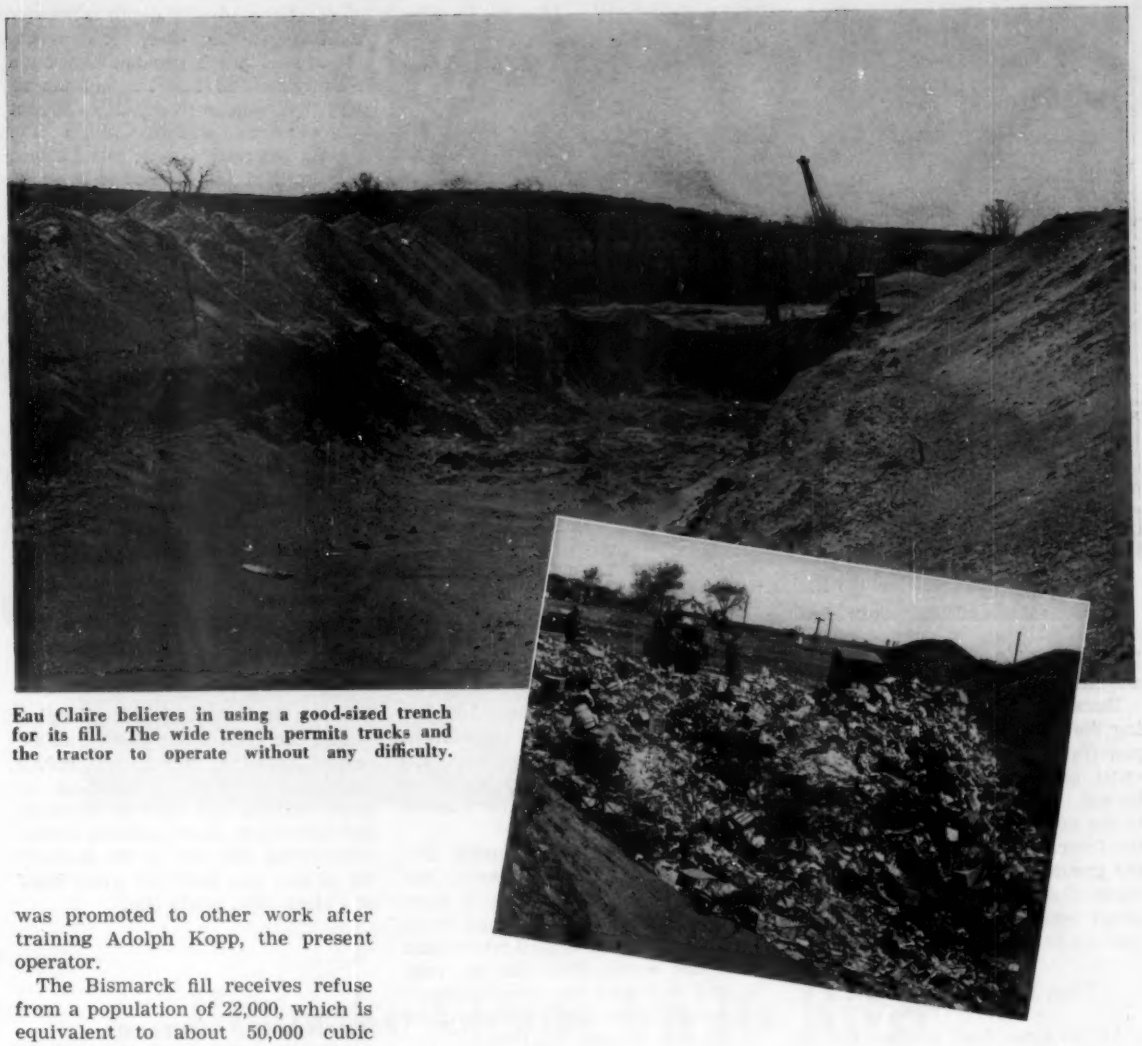
ALTHOUGH fill-and-cover, as a sanitary method of refuse disposal, has earned widespread acceptance, cities that are subjected to severe cold and frosts have hesitated to adopt this measure. Frosts that harden the surface of the earth often make winter excavation virtually impossible, particularly in cities that have no other alternative than to use the trench type of fill. Also, fear of excessive operational costs, because of cold-weather difficulties, have made officials uncertain about the practicability of the sanitary fill.

That, in many instances, these fears are unwarranted is illustrated by the experiences of at least two cities that suffer severe, cold winters. Not only has Bismarck, N.D., successfully adopted the ramp type of fill, but Eau Claire, Wis., has courageously experimented with a trench type of fill and modified construction procedures to offset difficulties caused by climate.

BISMARCK, N. D.

Bismarck, the capital city in central North Dakota, suffers from an extreme range of temperature—from over 100°F. in the summertime to 40° below zero during the winter. Although all evidence seemed to indicate that sanitary fills were not practical in this city, officials were encouraged by the work at nearby Mandan, a city of only 8,000. Here, a fill project, conducted jointly by the U.S. Public Health Service and the State Board of Health, proved conclusively that cold weather is no obstacle to building a fill.

Consequently, the city set about ridding itself of the unsanitary open dump and the accompanying nuisances from rats and insects. In April 1951, Richard Speidel, the city's first tractor operator, developed the fill-construction procedures which are still followed. As a result of the efficiency of this work, Mr. Speidel



Eau Claire believes in using a good-sized trench for its fill. The wide trench permits trucks and the tractor to operate without any difficulty.

was promoted to other work after training Adolph Kopp, the present operator.

The Bismarck fill receives refuse from a population of 22,000, which is equivalent to about 50,000 cubic yards of refuse annually. Operating costs do not exceed $25 per day, including the charges for an operator and a dump foreman. The only equipment that is used is one International TD-14 crawler tractor with a 2-yard Drott Bullclam bucket.

Uses Ramp Method

The operation is conducted according to the ramp method of construction, divided into sections. Each active ramp area measures about 50 feet in width and 100 feet in length. Trucks deposit the refuse on the sloping side of the ramp and the tractor proceeds to compact the load. During compaction, the operator is careful to mix sufficient earth with the refuse to eliminate the danger of fire and the nuisance of blowing paper. When the desired final elevation of the ramp is obtained, the operator spreads a 12- to 18-inch blanket of earth.

In the past three years, settlement has been negligible. The sandy clay type of soil of the vicinity has presented no serious problem to winter operations. It remains dry enough so that it does not freeze solidly and can be handled without difficulty by the tractor and Bullclam.

EAU CLAIRE, WIS.

Eau Claire, a city of 36,000 in western Wisconsin, has accomplished an even more interesting feat in adopting the trench type of fill in a cold-climate area.

Until 1946, Eau Claire used the old rat-infested type of combined refuse and garbage dump. However, one day the city discovered that not only was the old dump incapable of receiving another load, but that all prospective sites for a new dump lay outside the incorporated area of the city where town governments refused to allow any type of disposal within their limits. The suburbs, the township officials insisted, were not to become the city's dumping ground.

The most likely solution was the establishment of a sanitary fill on a small tract of city-owned land. Even before this fill was complete, the city annexed and purchased a 160-acre level, sandy tract, which provided a fill site for many years to come. By this time, the city had solved the problems of building a trench fill in frozen ground.

Eau Claire had, like many cities, put off building a fill because of the cold winter climate. Winter operating experience during those first few years certainly seemed to justify this fear. In the early days of fill-and-cover, the city made it a practice to excavate trenches the year around with an old city-owned dragline, and then compact the garbage and rub-

Even in the coldest weather, the tractor can bulldoze the earth over the refuse.

bish with a Caterpillar D-6 tractor and bulldozer.

Excavation costs skyrocketed during the wintertime. When the frost penetrated the ground, it formed a crust too tough for the crane and bucket. The operator then resorted to the use of a ball to break through the frozen earth, and finally blasted the ground. By 1950, it became obvious that the city would need to either replace the worn-out crane or conduct excavation by contract.

First Contract Awarded

At the same time, another fact became apparent. In the coldest weather, it was possible to move, with a bulldozer, excavated dirt which had been stockpiled for several months. This suggested a money-saving modification of operating procedures.

Beginning in 1951, the city awarded the first contract for excavation of the sanitary-fill trench. The contractor was permitted to make the excavation at any time at his convenience. He was only required to keep, at all times, at least 100 feet of trench open ahead of the current filling operation. In this way, the contractor is able to work his crane at times that it might otherwise be idle.

The cost of excavation during 1951 was 13 cents; 1952, 12 cents; and 1953, 10 cents. The work is most efficiently accomplished with a crane that has at least a ¾-yard bucket and a 40-foot boom. This size of crane is able to make the trench in two passes and throw the dirt far enough to the side to clear the trench.

Garbage and rubbish are hauled by private contractors; and many individuals haul their own. Brush, stumps, and clean refuse are placed to one side of the fill where they are burned periodically and the ashes swept into a hole that has been dug for just that purpose.

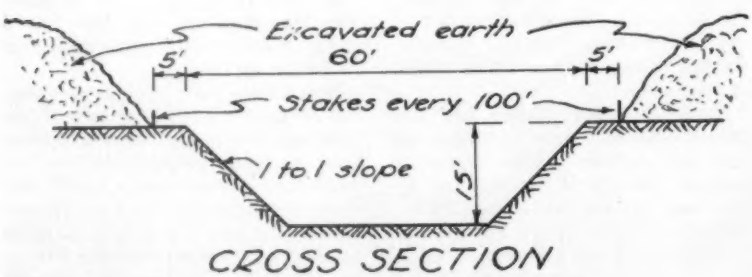
The operation requires the excavation of about 30,000 cubic yards of trench per year, dug about 15 feet deep. Although this depth is greater than is generally used, it does not require as much ground. Although the city does not insist upon unnecessary precision in trenching, a 60-foot top width and 30-foot width at the bottom has proved most satisfactory. The level of the ground is raised 6 feet by this operation.

Estimating 30,000 cubic yards of trench per year—about 1,200 lineal feet—to serve 36,000 persons means that the city requires 2.3 cubic yards per day per 1,000 persons served. Records indicate that most sanitary fill work requires between 7 and 8 cubic yards, or nearly three times as much as Eau Claire.

Fill Work Schedule

Filling moves forward at the rate of about 4 feet per working day in a six-day week. The tractor operator is on duty from 8 a.m. to 5 p.m., and a truck spotter from 7 a.m. to 7 p.m. to direct dumping and help keep the area clean. One private scavenger is permitted to collect such salvable material as he can.

Other than the nuisance of flying paper, the system has proved an excellent solution to sanitary refuse disposal. Wintertime handling of piled material has been no problem, and Eau Claire is enthusiastic in recommending this use of the sanitary fill to any city that can avail itself of a clean, dry, sandy site.



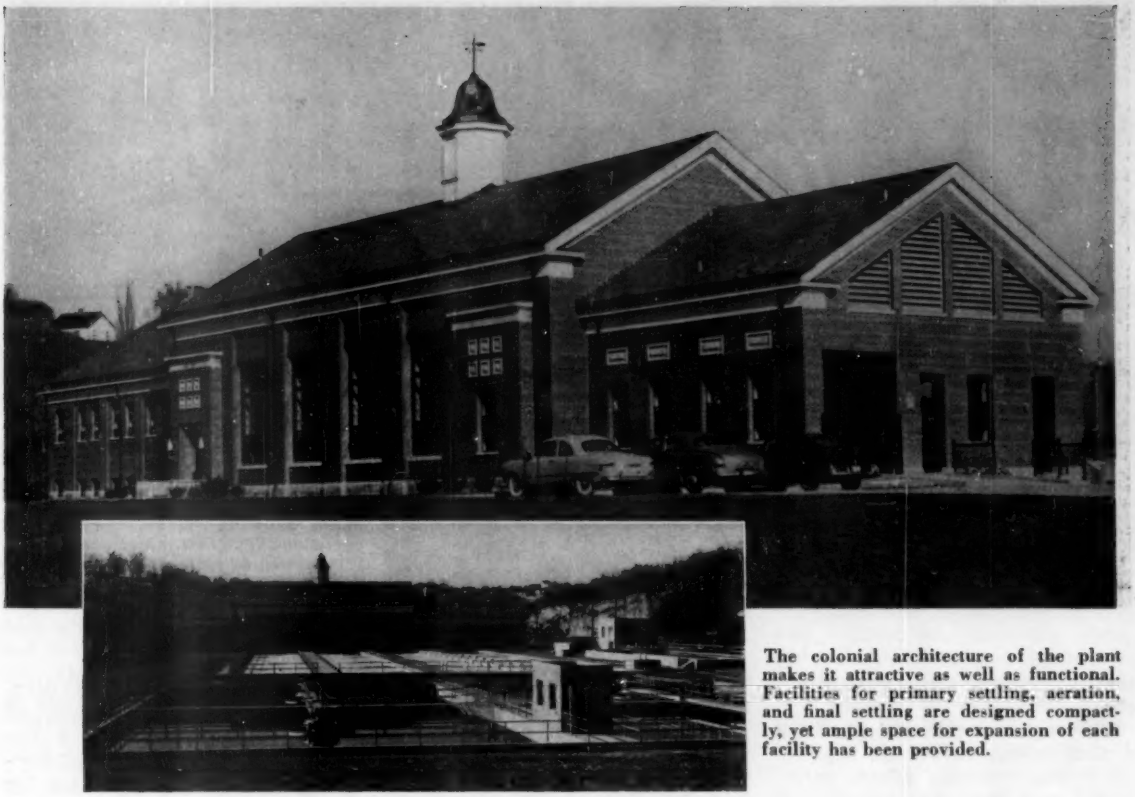
The trench is excavated to this general cross section.

Anchorage Annexes 3½ Square Miles

THE ANNEXATION to the City of Anchorage, Alaska, of a 3½-square-mile area became official during March, after a final order was signed by the judge of the District Court denying a series of motions to stay the order of annexation.

The city immediately proceeded to extend services into the newly annexed areas, despite several pending judicial appeals. Road maintenance, police protection, and fire-fighting services were extended immediately. Zoning, building, and other protective codes likewise took immediate effect.

A general distribution pamphlet was prepared by City Manager George C. Shannon to acquaint the new citizens with the operation of their government — what services they may expect, their responsibilities, and the approximate timing of installation of new improvements and service extensions.



The colonial architecture of the plant makes it attractive as well as functional. Facilities for primary settling, aeration, and final settling are designed compactly, yet ample space for expansion of each facility has been provided.

Roanoke Cleans Up Its River

By F. C. FUNNELL, Jr.
Superintendent of Sewage Treatment
Roanoke, Va.

IN THE PAST, the river that bears our city's name was scarcely a subject of civic pride. Roanoke, a city of approximately 92,000 people, lies in the center of a valley surrounded by mountains. The Roanoke River meanders through the south central part of the city from west to east for a distance of about 8 miles. As rivers go, the Roanoke is not large, having a normal flow of 393 cfs (cubic feet per second) measured over a 42-year period.

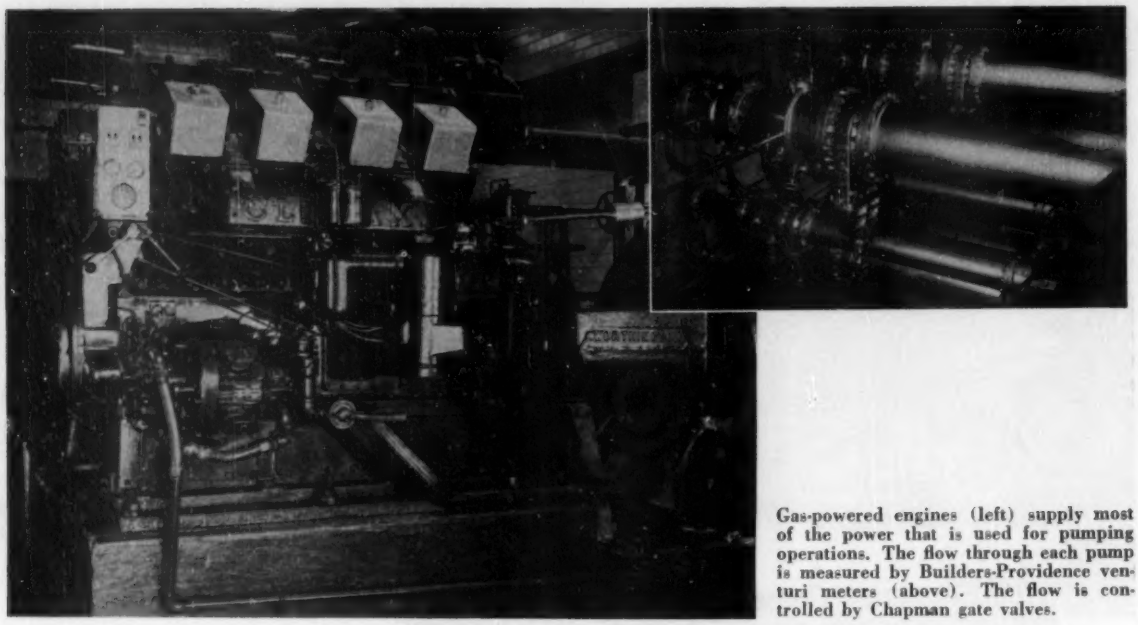
For many years, Roanoke emptied almost all of its sewage into the river with no treatment at all. In addition, the town of Salem, 8 miles to the west, also dumped its sewage into the river, as did Vinton, 4 miles to the east. The greater portion of this discharge was domestic sewage; the remainder, wastes from a tannery, a large packing plant, several creameries, and a railroad-shop installation. As a consequence, the river was little better than an open sewer and it looked the part.

Everyone realized that this sanitation abscess could not be tolerated in a self-respecting society. In 1946, practical, corrective steps were taken when Alvord, Burdick & Howson, Chicago consulting engineers, were retained to make a preliminary survey and submit a report to a committee from the three municipalities of Roanoke, Salem, and Vinton.

The report disclosed that the river, at its low stage of 30 cfs, could handle only 1,000 pounds of pollution measured as BOD (biochemical oxygen demand), yet Roanoke was dumping 20,000 pounds of BOD daily, and Salem was dumping 3,700 pounds at the same time. Water use was calculated to be 84 gallons per capita daily. The result was an average of 2,000 pounds of BOD per 1,000,000 gallons. With this tremendous overload it was no wonder that the river had a distinctively unpleasant odor and appearance.

Treatment Process

Because of the low reserve of the river, a treatment process that offered a high degree of purification was absolutely necessary. The final choice lay between a high-rate trickling filter or activated-sludge treatment. The difference in cost was negligible. Therefore, because of the opportunity for better land utiliza-



Gas-powered engines (left) supply most of the power that is used for pumping operations. The flow through each pump is measured by Builders-Providence venturi meters (above). The flow is controlled by Chapman gate valves.

tion, the activated sludge process was chosen.

The engineers prepared plans for a plant having an average capacity of 14 mgd (million gallons daily) with a peak of 21 mgd, based on an estimated population growth to 140,000 by 1965. The design was accepted by the city, and work was begun.

During this period, the city was involved in a program of annexation that doubled its area and increased its population almost one-third. The new area was divided into three sections, each of which had to be provided with sewers immediately. This project required an expenditure of $917,000 and added 37.7 miles of sewer lines to the system.

Plans were made for the interceptor lines by the firm of Mattern and Mattern of this city. Estimates showed that the interceptor lines and the treatment plant would cost about $4,000,000. A referendum was held and the citizens of Roanoke voted for a bond issue to raise this sum.

12.7 Miles of Pipe

The interceptor lines required laying 12.17 miles of pipe ranging from 24 to 48 inches in diameter, at a cost of $2,023,000. These lines, of necessity, were laid along the banks of the Roanoke River and one of its tributaries, Tinker Creek.

Considerable portions of the lines were located below the water level of the river. A great amount of concrete encasement was necessary — both for protection against high water and for strength. Crushed stone and, in some cases, concrete were used to stabilize the trench bottom when necessary to receive the pipe. Lock Joint concrete pipe with neoprene rubber gaskets was used throughout the entire interceptor system to prevent infiltration from becoming a problem. This job was begun January 1, 1951, and was finished in August 1952.

Cycle of Treatment

The two interceptor lines of the Roanoke River and Tinker Creek meet at a junction manhole at the north end of the main building. From there the sewage passes through three underground channels to the comminutor chamber where the large solids are shredded by two Chicago (C-P) Pump comminutors, each with a capacity of 9 mgd each. Space has been set aside for a third unit at this location.

The sewage then flows into the wet well. Three 12-mgd Worthington raw-sewage pumps lift it to the grit chambers. One pump is driven by a 125-hp electric motor; the other two are driven by 125-hp, V-80 Climax sewer gas engines. These are the only lift pumps in the entire sewage system at this time.

The sewage then flows through two Dorr Detritor grit basins, where the sand and grit settles out of the sewage and is removed by scrapers and conveyors. It then enters two primary settling basins, each 32 feet wide, 120 feet long, and 10 feet deep. The two basins have a capacity of 585,000 gallons that provide a one-hour settling period at average flow.

During the period of detention, the sludge settles to the bottom and is scraped to one end of the basins by Jeffrey collectors. From here it is transferred to the digestion tanks by three Marlow sludge pumps, each with a capacity of 73½ gallons per minute.

The settled sewage flows over weirs at the east end of the basins and is collected into a trough from which it flows to four aerator basins. Each basin is 30 feet wide, 260 feet long, and 15 feet deep. The four basins have a capacity of 3,500,000 gallons and provide five hours of detention at average flow plus 25% sludge return. In these basins, oxygen is introduced into the sewage by means of compressed air that is forced through C-P swing-diffusers equipped with C-P precision diffuser tubes.

The compressed air is supplied by four Roots-Connersville rotary-type blowers, each having a capacity of 5,000 cfm. One blower is driven by a 200-hp electric motor and the other three are driven by 250-hp, V-125 Climax digester gas engines. The oxygen promotes the growth of aerobic bacteria which further reduces the organic material in the sewage, which is in solution, to a solid or flaky mass — activated sludge, that settles readily.

The sewage, now called "mixed liquor," flows over weirs at the east

end of the basins and then to four secondary settling basins. Each basin is of the central-feed, radial-flow type and measures 70 feet square and 10 feet deep. They are Dorr Squarex clarifiers with a settling rate of 700 gallons per day per square foot of area. The sludge which settles in these basins is returned either to the aerator basins or to the primary settling basins by three Economy return-sludge pumps. These have capacities of 2, 3, and 4 mgd, respectively. The completely treated water, containing dissolved oxygen and able to support fish life, is discharged from the secondary settling basins to the Roanoke River through a 42-inch outfall.

Digestion Tanks

The digestion tanks are Dorr Multdigestors comprising three primary and one secondary tanks. Each is 90 feet in diameter and 23 feet deep with a 1,000,000-gallon capacity, and is rated at 4 cubic feet per capita. These concrete tanks are tightly covered and equipped with stirrers and heating coils which accelerate the digestion process.

During the process of digestion the sludge produces methane gas in considerable quantities. This gas is utilized for heating and for operating the engine-driven pumps and blowers. The sludge passes through overflow pipes from the primary to the secondary digester where the process is completed. When the sludge has been thoroughly digested to a stable or inoffensive state, it is released to open sludge-drying beds.

The treatment plant, which was under construction from October 1950 until July 1, 1952 at a cost of $1,805,806, began operating on July 13, 1952, providing primary treatment only. By October 1952, gas production was in sufficient volume so that the secondary system was begun. Since that time, the plant has been in constant and satisfactory operation.

Average flow has been 9 mgd. Suspended solids have averaged 175.5 ppm (parts per million) and BOD, 151.9 ppm. The personnel required to operate the plant total 16 men whose monthly salaries total $4,359-.98. Total cost of treatment, excluding debt retirement, ranges from a minimum of $19.04 per 1,000,000 gallons treated, to a maximum of $33.15. The city of Roanoke has established a sewer-service charge of 40% of the water bill to raise the funds that will retire the bond issue and pay the cost of sewage treatment as well.

For the first 10 months of 1953, the first full period of complete, normal operation, the treatment plant has operated at an average efficiency of over 90%, removing 8,600 pounds of BOD daily from the sewage and returning to the river an effluent that contains 68 pounds of BOD per day. The average dissolved oxygen of the effluent for this period has been 6.5 ppm.

River Appearance Improved

The appearance of the river has improved immensely since the large load of sewage is no longer imposed on it. The water is clear; large masses of slime and algae deposits have been stripped from the rocks; and there is no noticeable odor. In fact, residents along the banks of the river have met as a group to improve the appearance of the bank by cutting underbrush, trimming trees, and seeding. Plans are under way to provide scenic drives along the river, too. This sparked interest is a direct result of the tremendous improvement in the over-all appearance of one of the city's greatest natural assets, the Roanoke River.

Bethlehem, Pa., Uses Biofiltration

SINGLE-STAGE biofiltration is providing the purification that enables Bethlehem to meet the strict requirements set by the Pennsylvania Sanitary Water Board in this state's "clean-streams" program.

The plant, designed by Morris Knowles, Inc., of Pittsburgh, Pa., includes separate sludge digestion followed by sludge drying or incineration. The plant is designed to treat 12,500,000 gallons per day contributed by a population of 100,000.

The equipment, products of the Dorr Company, includes two 18-foot Detritors for grit removal and cleaning; four 135-foot S-7 clarifiers; four 120-foot distributors for the trickling filters; and two 65-foot Multdigestion systems, each with a primary and secondary tank. Eimco vacuum filters dewater the sludge and a C-E Raymond System incinerates the sludge or makes it available as a soil conditioner if desired. The same system incinerates the portion not needed.

The plant is managed by Robert L. Fox, executive director of the Bethlehem Sewer Authority.

Significance of the H-Bomb to American Cities

By FRANK P. ZEIDLER
Mayor
Milwaukee, Wis.

THE EXISTENCE OF hydrogen weapons which expend a power equal to or greater than 12,000,000 tons of high explosive has indeed brought profound problems to administrators of local governments, particularly of the metropolitan cities. They are now told by the highest authorities of the nation that the atom and hydrogen bombs can be devised in a range of sizes that can destroy any given city of the United States in one massive explosion.

The full significance of these new atomic weapons has not reached the people of the United States—neither in the threatened metropolitan areas nor in the rural areas.

Many people in the metropolitan areas seem to feel that the use of nuclear weapons will never occur and that somehow the fates will contrive to save their lives.

Mayors and city leaders who take an active leadership in a civil defense program that may upset the present way of people's lives, fear the loss of office because the public does not want to hear the full significance of the facts on nuclear weapons. As a result, all city administrations, even the best, have been far behind the development of science. The cities of America are extraordinarily vulnerable to air destruction.

The question, then, of the proper civil defense of the cities requires a two-fold answer. One answer is political in character and the other is physical. The political answer is found in bringing to the people of America the full realization of danger. The physical answer is found in getting people to give up some of the present comforts of city living for greater security in dispersal.

In the political and psychological aspects of civil defense, city administrators are caught between two major views. One is expressed in the question, "Why do we talk about civil defense and make preparations for it? This talk merely serves to incite people to a kind of hysteria that will of itself bring war and conflict."

On the other hand, there are some people in the United States who desire an immediate coming to grips with the international situation, because the prospect of a cold war seems a worse fate.

The art of politics is the art of doing that which is possible. Certain courses of action are left which can be followed, with art solving the above political dilemma. This course of action deals with the physical program of dispersal.

Need for Rapid Dispersal

American cities now ought to plan a short-run program of rapid dispersal of the population of target cities.

The short-run dispersal must encompass a removal of people from the cities within a relatively short space of time—say within two to six hours. We may have only 15 minutes' warning, but enemy forces may strike at airfields first before they strike at cities. This action would possibly give some cities more time to evacuate.

There might be three types of evacuation. The first is strategic evacuation. People voluntarily will leave the central part of the city some days or weeks before a possibility of attack. They must be told, or they must gather from the public press and other sources, that international tension is increasing. They should have made preparations in advance to be received in some area outside the target areas by friends or relatives.

The second type of dispersal is dispersal on the "yellow alert." This may call for a rapid evacuation of people who remain in a city after strategic alert. How many such people will remain can only be determined by estimates on a sample poll, or by actually asking everyone what his plans are. The traffic capacities of the city for evacuation should be studied, and for each district in the city an area should be assigned as an assembly point outside of the city. These assembly points should be numerous enough and carefully organized so as to take everyone who desires to come to them.

Some cities propose that evacuation be by motor vehicle, others by walking. This must depend on the judgment of local officials, taking into consideration local factors.

It will be necessary to provide for people attempting to disperse from a large city the necessary reception points, and this requires close coordination between the state government and the surrounding local units of government.

The Milwaukee area civil-defense organization had a meeting with the governor of Wisconsin, and asked him to arrange a conference with a special committee of the state legislature to discuss the problem of dispersal of cities. In our memorandum to the governor, I pointed out: "The only protection for people in the larger cities of the state is dispersal. A program for evacuation and dispersal must be made ready soon and kept actuated as long as we can now foresee." I also advised the governor that no governor or mayor can afford to assume the blame of actual unpreparedness. They know the danger and it is no excuse if people are not ready to listen at a time when the danger does not seem imminent.

Target and Support Areas

After development of a short-range program of evacuation, target cities must plan for long-range dispersal. States might divide themselves into target and support areas. This means the development of reception camp sites more or less permanently maintained with needed supplies for operation always on hand.

A system of pre-attack dispersal of supplies, spare parts, and critical items, now normally warehoused in cities, might also be prepared.

Legal, fiscal, and governmental re

EDITORIAL NOTE: See also "Los Angeles and Dayton Install Effective CD Communications Systems," and "New Weapons Bring Local Resurge of CD Interest," page 13 of this issue.

sponsibilities must be developed beforehand, so that both the short-run and long-range dispersal systems operate with due process of law behind them. Civil defense forces the redefinition of what constitutes a metropolitan area. States will have to recognize responsibilities toward the subordinate branches of government which are unable to meet the needs of dispersal without an overhauling of state policies, particularly state financial policies, with respect to cities.

Dispersal of People and Industry

Under the long-range impact of dispersal, sooner or later, people as individuals will begin to consider what they will do in locating new homes and their businesses and industries. Already the federal government has encouraged a great many industries to locate away from the central target areas, and this is producing a movement which will slow down and may ultimately halt the growth of the larger American cities. Project East River* recommendations should be studied by every target area.

Reduction of target vulnerability means dispersal of people and industry, a duplication of utilities, reduction of urban densities, rigid zoning for new growth, a financial study of municipal government in order to minimize the impact of such changes, and proposals for changes in governmental responsibilities.

The initial creakings and groanings to overcome the inertia of people on civil defense are bound to be translated into political action. The pressure to do something will suddenly build up, and people who have been criticizing local government for too much action on civil defense, will suddenly demand why more is not being done. It is better to be a good deal ahead in this matter at the risk of public displeasure rather than the least bit behind, for that would be fatal.

City officials together must secure certain federal policy decisions to keep them ahead of the problem. The National Security Council, for example, ought to advise states to set up a system of civil-defense zoning which reduces the target vulnerability of the metropolitan areas. Rural agencies should also be given more information on civil-defense protection, since the ring of partial damage becomes immensely greater and will affect rural areas.

Lastly, the United States government must work ceaselessly on international agreement on atomic control. In view of the fact that so many nations of the world have seized upon the President's challenging idea of sharing atomic energy for peacetime purposes, we feel that preparation for psychological and informational understanding of atomic energy by people in the cities will enable the people of the United States to act intelligently on proposals for sharing the peacetime use of atomic energy. This, as an alternative to the military use of atomic energy, may prove to be the path out of the morass.

* See "Non-Military Measures to Reduce Urban Vulnerability," by Otto H. Nelson, THE AMERICAN CITY, December 1953, p. 104.

Spokane's 'Operation Walkout'

A Realistic Civil Defense Test

By ARTHUR R. MEEHAN
Mayor
Spokane, Wash.

Spokane's citizens cooperate with the city civil defense test despite cold rain.

SPOKANE'S "Operation Walkout," April 26, proved that a metropolitan area could be evacuated quickly in the event of an imminent bombing, or other disaster.

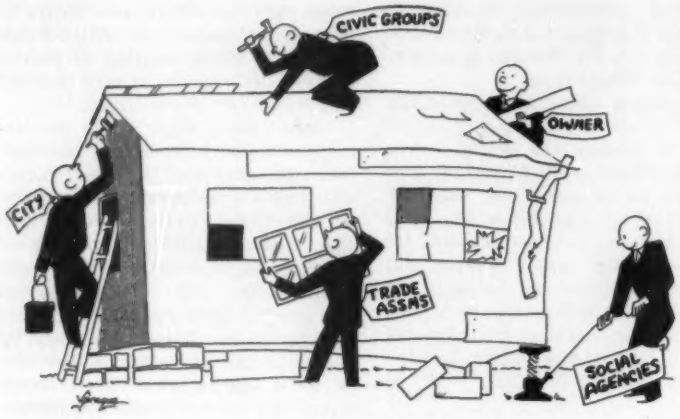
Some 15,000 people poured from the downtown buildings at 9:35 a.m. in a pouring rain and bitter wind, when the air-raid sirens started screaming. These people walked from two to five blocks out of the congested area to loading perimeters. In just eight minutes the congested area was emptied except for wardens and police. Jets flew over the city and anti-aircraft guns, shooting blanks, went into action. Large noise bombs were exploded from various points to add to the realism.

Approximately 50 nurses were evacuated by taxicabs from the downtown medical buildings in about four minutes, and taken to outlying hospitals. Sixty pieces of heavy equipment rolled through town escorted by auxiliary motorcycle police to out-of-town dispersal points. Ambulances and first-aid crews were on hand at all loading perimeters to take care of any casualties. Tanks, antiaircraft guns, were manned, and armed National Guard troops from the 161st Infantry patrolled the streets, adding to the realistic setting.

At 9:47 the guns and bombs stopped and an eerie silence fell over the whole downtown area. This silence lasted for about four minutes. The downpour of rain continued and the cold, chilly wind added to the

(*Continued on page* 183)

To Restore Blighted Areas



Suggestions for Effective Action in Local Housing Rehabilitation Programs

By JOHN E. CONNOLLY, B.S.*
and
RALPH J. JOHNSON, M.S.†

THE IMPROVEMENT of substandard housing through systematic application of minimum housing standards is now generally recognized as an important program for increasing the supply of healthful housing. Housing rehabilitation, as such a program is commonly called, has received widespread recognition within the last several years. This publicity has stressed the need for cities and towns to "face up" to their problems and undertake programs for rejuvenating substandard housing. However, little has been said about some of the practical problems that need to be solved in the day-to-day operation of a rehabilitation program.

Cooperation Essential

No formula or fixed pattern of procedure exists for housing rehabilitation. Rather, success depends in large measure upon close cooperation among municipal officials, trade associations, citizens' organizations, and the people of the community. No single municipal department or citizens' group has all of the answers necessary for neighborhood improvement work. Through genuine cooperation, however, many of the problems of existing housing can be mastered by using the resources of the municipality.

Early housing rehabilitation programs were largely developed by trial and error methods. More recently, however, communities have been able to develop programs based on the practical experience of others. Sufficient knowledge has been gained to make possible a discussion of some of the problems that an administrator may encounter during the development and operation of a housing code compliance program. For the purpose of this discussion these problems have been grouped under (1) work area selection, (2) administration, and (3) communication.

A smooth-running, effective housing compliance program is no accident. Is is the result of coordinated effort by municipal enforcement departments (Health, Building, Fire, Police, Law), city planners, and citizen groups. To be most effective, the work should be related to the future development or master plan of the community. Several principles should be considered by municipal officials in selecting salvable areas for rehabilitation. At the beginning, the program should be clearly defined and its limitations understood by those responsible for selection. Housing rehabilitation cannot eliminate slums; it can improve the quality and extend the useful life of substandard dwellings that are worth saving.

Experience has shown that the likelihood of success is among the factors to be considered in selecting the first rehabilitation area. If detailed data are available on the quality of dwellings in the substandard area, the selection task will be easier. More than 50 cities, both large and small, have found the *Appraisal Method for Measuring the Quality of Housing,* developed by the American Public Health Association, to be particularly useful in providing detailed information for selecting both rehabilitation and redevelopment areas.

Generally speaking, the best results can be obtained where maintenance deficiencies are relatively high, but where basic facility deficiencies are not excessive. Where possible, the area should be adjacent to some desirable environmental characteristic, such as a park, playground, or good housing. The environment as a whole should be acceptable as a decent place to live, without extensive improvements.

In addition, it is important to consider the influence of area citi-

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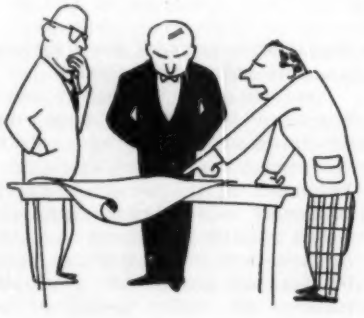


zens' associations, churches, civic and fraternal organizations in the initial work area. These local associations can contribute valuable assistance to the program through citizen contact, voluntary compliance, and self-help. Consideration may also be given to such neighborhood characteristics as age, family status, race, customs, and related welfare data.

Furthermore, the cost of repairs or modernization should be considered in relation to the real value of the property after improvement. It should be economically feasible for most of the residents to continue living in the area.

In a few communities, pressure for an immediate action program, stemming from special-interest groups, may result in the selection of an area on an arbitrary basis. Where such citizen enthusiasm exists it can be turned to advantage. A small pilot area may be agreed upon by city officials and the citizens concerned. It is usually not necessary to select more than one such area.

Finally, area selection should be related to environmental factors in the neighborhood. Elements other than the dwelling make a resident proud or dissatisfied with his environment. To increase the attractiveness of the neighborhood, environmental deficiencies should be determined by an appraisal of such items as traffic, sidewalks, lighting, schools, playgrounds, garbage collection, and street repairs. A neighborhood plan should then be developed such as has been done in St. Louis, Mo., and Providence, R. I., showing the items to be corrected or installed with an approximate time schedule for completion. The residents should be given an opportunity to participate in this kind of planning. The community must, of course, make the funds available to correct these deficiencies. In short, practical planning is essential.

An effective rehabilitation program involves the authority and abilities of many regular municipal departments. The task of the chief administrator is to bring these departments together so that each may make its special contribution to the program. Several communities, including Portland, Maine, Brookline, Mass., and Denver, Colo., have found a mayor's steering or coordinating committee to be effective. Such committees are typically composed of representatives from the health, building, fire, and legal departments, along with planning, zoning and redevelopment officials if present in the community. Others are added or substituted as appropriate for each community. In Tulsa, Okla., effective action was initiated by bringing together the health and housing committees of the Chamber of Commerce. Working together promotes mutual understanding and establishes the basis for cooperative effort.

HOUSING REHABILITATION is a practical program which has its definable place among recognized housing programs. It has the potential for bettering the standard of living as well as providing economic and social gains to the community. The work involved is not stereotyped and follows no hard and fast pattern. There is ample room for new ideas and methods. Material rewards to the administrator or inspector are few, but personal satisfaction in contributing to the health and well-being of fellow citizens is significant.

Enduring—Only with Mutuality

Housing rehabilitation is so complex and so personal—dealing as it does with the health, safety, and housing of many people—that it is apparent that no one department can carry out the entire program without the help of others. For example, it would not be legally possible for the health officer to provide recreational facilities or to repair streets. Likewise, it is not within the scope of authority of the building official to establish minimum standards of health and sanitation for existing housing. Effective cooperation clears the way for joint effort and for elimination of misunderstanding or dissension between the various departments.

A few communities have experimented with such operating techniques as interdepartmental inspection teams, violation notices signed by all department heads concerned, and program administration through a committee. None of these could be termed effective. It is generally concluded that responsibility for inspection, education, and compliance should be centralized within one municipal department. However, this does not preclude the referral of certain items to other departments.

It is essential that the department administering a rehabilitation program have as its primary function and concern the well being of the people—both occupants and owners. A successful enforcement program involves compliance with standards primarily on a voluntary basis. Communities can scarcely afford an adequate number of inspectors to enforce the law on every substandard dwelling unit, if every compliance required legal action. Obviously, education and persuasion of the type traditionally used in health programs, is preferable to depending primarily on coercion.

Housing Code

The law is fundamental to housing improvement effort. From one point of view, a housing code is a public explanation of the lowest standard of health and sanitation for occupied housing that the community will tolerate for its citizens. The housing code should not be viewed solely as a police instrument with which to force needed corrections to be made.

Since no two communities are exactly alike in every respect, a code adopted for one city will not be entirely applicable to another. Basically, however, all codes should contain sections on facilities, maintenance, and occupancy, including such items as space, light, ventilation, garbage disposal, and rodent control, and a statement on the responsibilities of owners and occupants.

While the technical standards are important, the administrative-legal sections such as those referring to notice, hearings, entry, penalties, and a statement on the responsibilities of owners and occupants are indeed significant. Since its release in 1952, the American Public Health Association's *Proposed Housing Ordinance* has been used widely as a reference document in the preparation of housing codes. Communities have tailored the principles contained in this document to meet local conditions.

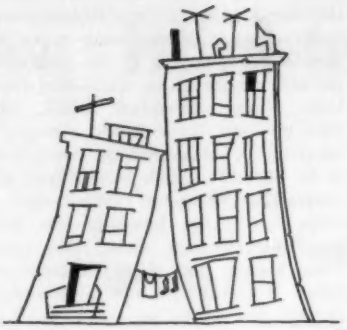
The preparation of a housing code is tedious and exacting work. Care and thought must be given to each principle to be incorporated as law. An administrator must be able to justify each item from both a legal and a technical viewpoint. It is necessary to discuss each section with the staff, legal officer, and other municipal departments. If a citizens' advisory committee exists, the proposed code should be taken up in detail with them.

Staff and Budget

Few mayors, city managers, or councilmen disagree with the need for housing improvement. The worth of rehabilitation has been expressed many times in terms of more healthful and safer housing, an improved tax base, and a better community in which to live. Adequate staff and sufficient budget are essential for effective action.

Some of the time of sanitarians and inspectors can be redirected to systematic enforcement work rather than nuisance abatement complaints. However, experience has shown that additional personnel are necessary if the program is going to be carried on at a level high enough to eventually master the problem. Since the code should be of the performance rather than the specification type, it is apparent that the new personnel must be able to exercise sound judgment, based on knowledge of the sciences, in the compliance process.

Housing-program directors have found many cases in which a property owner does not have the financial resources to complete every item on the compliance notice within the



specified time. Yet, these owners may have a genuine and sincere desire to improve properties. No purpose would be served by bringing such an owner to court and having him fined. In such cases, the program director exercises judgment in determining what constitutes reasonable progress. Time extensions may be granted, providing that work on the property is progressing satisfactorily. It is not uncommon, in such cases, to have work extended over a period of a year or more.

The ultimate solution to the financing problem is not yet apparent. Citizens in some communities have developed special funds which are loaned on easy terms to individuals unable to obtain credit from other sources. Elsewhere, donations, self-help, trust funds and other types of assistance have been used. Fortunately, as improvement work continues, neighborhood property value increases and consequently the usual lending sources are more willing to make loan funds available.

An inspector working on a newly formed housing program may soon find that much of his time is used in explaining the program itself. He may also find that, despite good radio and newspaper coverage, the message

has not reached the people concerned. This situation may be eased by improving the communication system between municipal officials and the residents to be affected.

Citizens' groups can help at two levels. At the administrative level, groups representing councilmen, realtors, home builders, attorneys, social agencies, bankers, etc., can assist in establishing policy and program objectives through a citizens' advisory committee. Such a committee has been successful in many communities, including Boston, Richmond, and Milwaukee. At the "grass roots" level, clubs, neighborhood associations, churches, local PTA's, etc., are effective in explaining details to the residents.

Channels of Communication

Municipal officials should discover —or develop when necessary—proper channels of communication between the two levels. Once these are established, a two-way interchange of ideas may take place. Information coming from the advisory and administrative group can be passed along to the residents.

Erie County Supervisors Adopt Salary and Classification Plan

THE ERIE COUNTY, N. Y., Board of Supervisors has adopted a modern nonpolitical salary and job classification plan for county employees, recommended by Barrington Associates, New York City management consultant firm, following a five-month job-evaluation survey.

The plan adopted will eliminate many salary inequalities through assigning the same salary grade to all occupations of the same job value. A total of 3,075 Erie County employees will receive salary increases at an annual cost of $1,326,590. These include about 80% of the county's employees who were found to be inadequately paid. No across-the-board increase was recommended.

The Barrington survey showed that average salary levels in many instances in supervisory, technical, professional, and administrative jobs lagged, while those in unskilled and less responsible positions generally were sufficient. Many salary ranges were inadequate to provide incentive for improved performance or to recognize the length of satisfactory service.

Putting Our Orders In One Basket

Roy Swenson, about to place an order.

By ROY SWENSON
Assistant Purchasing Officer and Accountant
Richfield, Minn.

WRINKLES creased Josephine's forehead as she thumbed through the purchase order files. From her expression you could see she was puzzled. Finally, she slumped into a chair and sighed, "I give up. I've spent hours trying to match this invoice with a purchase order. I can't even find out who made the order."

Procedures in the purchasing department at Richfield, Minn., were in this sad condition in June 1951. A complete survey showed many deficiencies in the set-up, so village officials decided to attempt improvement by creating a new position of parking and traffic movement, and (Since purchasing is closely allied with accounting, the jobs could be combined with ease).

I was selected to fill the new position in January 1954. My previous experience had been in a rather specialized line in the purchasing field of private industry; however, I felt I had been sufficiently introduced to purchasing fundamentals to handle the position. I had received a degree in public administration from the University of Minnesota in July 1952 and since that time, have been continuing my education in related courses at the University's night school.

When I arrived, the village was following a purchasing policy that resembled a central system in some aspects, but no one person devoted even part of his time to purchasing. Under Richfield's form of government, the manager is the purchasing officer. Because of his other duties, it wasn't always possible for him to spend sufficient time with this responsibility and, as a result, much of the buying was done by numerous department heads. Purchase orders were mere confirmations instead of authorizations to buy. The village was not receiving the benefits that are available from giving consolidated orders to the most qualified vendor for the greatest discounts and with the least amount of effort and time. Sometimes several separate orders were placed with the same firm in one day by different people. A central purchasing system should not cost any village more than 1% of the total dollar volume of sales, and often savings are as high as 10% to 15%.

Innovations introduced in the last five-month period, other than increased centralization, include the purchase of a drunkometer. Before that, we had been taking motorists elsewhere for testing, a service which cost the village $10 per test. In 1953 we subjected 48 persons to the test, costing the village $480. The drunkometer amounted to only $252. Before buying this instrument, the village spent almost once again as much money as was necessary by not owning this instrument.

Combined Form

We have also prepared a new form which combines the purchase order with the verified statement. Through the use of snap-out carbons, our typing time will be reduced 50% or more. Our new Elliott Addressing machine will also conserve time. Other items we purchase include office supplies, machines and furniture, street and sewer equipment, forms, photographic supplies, lumber, motor oil and greases, motor-vehicle accessories and tires, janitors' cleaning supplies, electrical supplies and other equipment.

Because Richfield is predominantly a residential suburb, many of the supplies and materials we need are not available here, yet many citizens felt we should buy from local merchants. Where to buy was becoming a matter of public policy, so we adopted the attitude, "when equal, buy in Richfield." If we can purchase quality merchandise from outside vendors at a saving, we do. Village residents and merchants alike are always glad to conserve public funds, and that is one way in which this service can be performed.

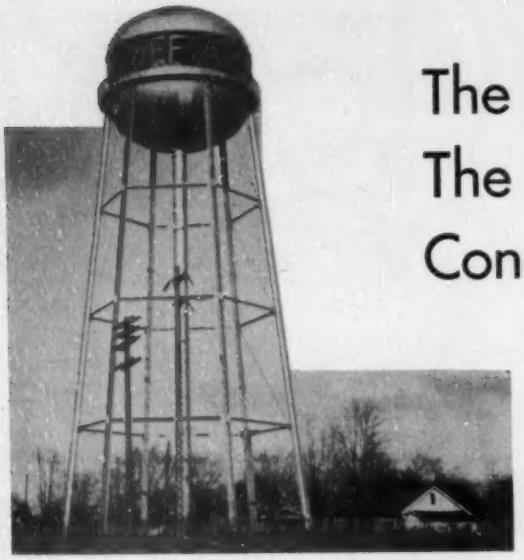
I work under the direct supervision of the village manager, and some of my other duties include projects which he assigns. It seems to me that we are progressing satisfactorily toward a centralized purchasing system. Habits are difficult to change, and losing authority to act is not accepted easily, but with the full cooperation of all department heads, the purchasing officer will be able to carry out his responsibilities more efficiently at a greater savings to the community.

Most significant is that village officials recognize the need for a central purchasing system and have taken steps to install one. By selecting qualified purchasing personnel and using dependable purchasing procedures—buying wisely, creating good public relations with vendors and department heads, and at the same time gaining their cooperation and confidence—a smoothly operating central purchasing system will pay dividends many times over

Businessmen Attend Their "Town Meeting"

THE Chamber of Commerce of Akron, Ohio, conducted a highly successful "Town Meeting" on March 30, at which 150 Akron District businessmen discussed such subjects as the proposed sewer fee increase, operation of municipal service departments, effect of outlying shopping centers on center-of-town business, parking and traffic movement, and how soon Akron schools will need more buildings and more funds.

Mayor Leo Berg, Service Director Leo G. Walter, Finance Director John Davies, and Law Director Edward O. Erickson were kept busy answering questions.



The Case of The Inoperative Cone Valve

Defiance, Ohio, notes some unusual experiences during the improvement of its water-supply system

By DON HAZELSWART
Superintendent of Water Supply
Defiance, Ohio

WHEN YOU GET good equipment, designed to do a specific task, you can depend on it to perform even under surprising conditions. In Defiance, a city of 12,000 in northwestern Ohio, we discovered this while revamping our water system.

A 300,000-gallon elevated steel tank on the east side of town supplies reserve pressure to the system. The tank is equipped with an 8-inch Chapman cone-type altitude valve. The valve is driven by a hydraulic piston which, in turn, is controlled by a diverter valve actuated by differences in tank pressure. The unit was installed in 1936 when the tank was built along with other improvements to the water system.

However, Defiance water, being hard, has a tendency to form scales that would clog the diverter and the piping. Consequently, we had to do a thorough cleaning every six months to keep the system operating smoothly and to prevent breakdown in supply.

Maintenance Difficulties

During the war years, when even routine maintenance was difficult, we could not maintain this biannual cleaning schedule. So our maintenance crew removed the diverter valve and left the altitude valve open. Whenever pressure was great enough to blow water out of the overflow, the operator would stop one of the pumps. This usually balanced out in a rough manner. Nevertheless, the system was kept in sufficiently good functioning order for the duration of the emergency.

However, with recent improvements at the pumphouse and in the distribution system, there is usually enough pressure at this tank to force water out of the overflow, even with only one pump functioning.

Consequently, we purchased a new controller from the Cla-Val Company of Alhambra, Calif., which we attached to the old cone valve. This controller was all that the old valve needed. The valve, which had remained in the open position for over five years, closed immediately and has functioned perfectly ever since that time.

The elevated tank, erected by Pittsburgh-Des Moines, measures 147 feet to the overflow point. Since this tank was built, the same company supplied another 300,000-gallon unit to the treatment plant in 1948. A third tank of the same capacity will be erected at the north side of the city's distribution system.

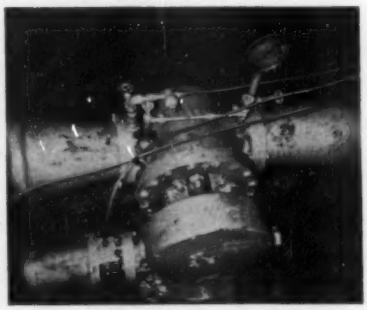
The tank at the plant has cathodic protection, but because of weather conditions, we plan to coat the interior of this one and of the new unit with No-Ox-Id, which is a product of the Dearborn Chemical Company. The east-side tank has been coated with this material and, after ten years, seems to be in very good shape. We have observed no deterioration in the tank.

Several years ago, the pH of the plant effluent was lowered by increasing the recarbonation. This treatment resulted in complaints about turbid water whenever a surge occurred which was caused when a line was flushed or a hydrant opened. However, after a year or so, complaints ceased. Apparently, the old loose scale had all been removed.

Stabilizer Reduces Scaling

Alkalinity now drops only as low as 2 to 3 ppm while the water is proceeding from the plant to the end of the system. Recently, we have been adding Calgon which seems to be useful in reducing the scaling of plant feeders. This experience corresponds with improvements noted in other water works that have used this product as a stabilizer.

At this time, Defiance is spending more than $1,000,000 for improvements in the distribution system, the treatment plant, and pumphouse. But that is still another story that will be reported to THE AMERICAN CITY magazine as soon as it is complete.



The valve that remembered its duties after five years of retirement serves the elevated tank shown at the upper left.

"Cost, maintenance, efficiency and appearance are linked together in the selection of street lighting equipment."

Ed Karns, Westinghouse street lighting sales manager, has been working with municipal authorities and utilities for over 20 years, helping to find practical answers to street lighting problems involving main business streets, heavy traffic. On the next few pages, he evaluates mercury street lighting fixtures in relation to these problems.

Mercury has a new set of answers to these street lighting problems:

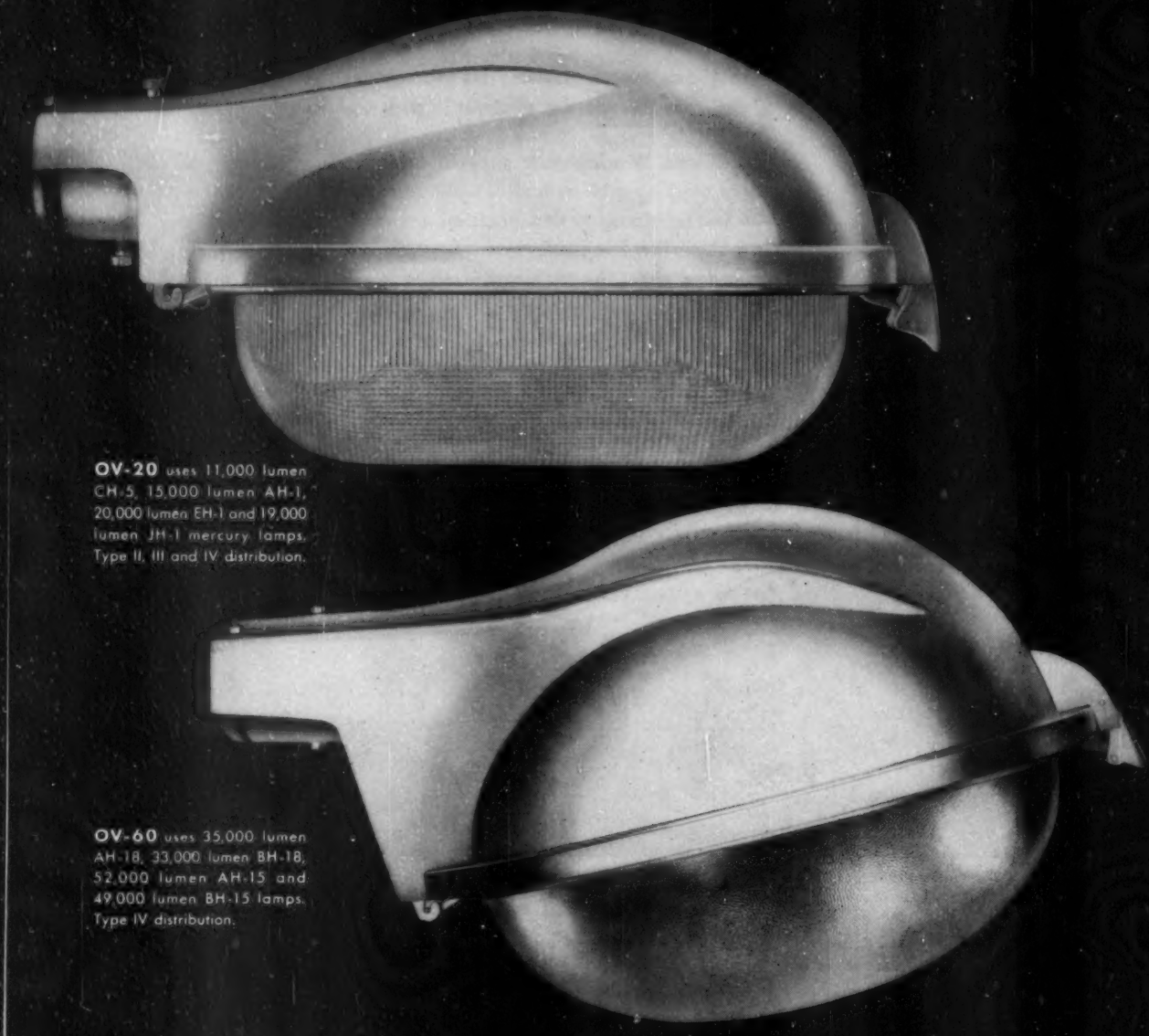
Efficiency. Mercury lamps deliver 2 to 2½ more lumens per watt than incandescents.

Cost. More lumens per watt mean more light for the same power consumption. Fewer fixtures do the job.

Maintenance. Three times longer lamp life than general service incandescents.

Appearance. Distinctive and modern fixture styling fits perfectly with modern city planning.

J-04352-1



OV-20 uses 11,000 lumen CH-5, 15,000 lumen AH-1, 20,000 lumen EH-1 and 19,000 lumen JH-1 mercury lamps. Type II, III and IV distribution.

OV-60 uses 35,000 lumen AH-18, 33,000 lumen BH-18, 52,000 lumen AH-15 and 49,000 lumen BH-15 lamps. Type IV distribution.

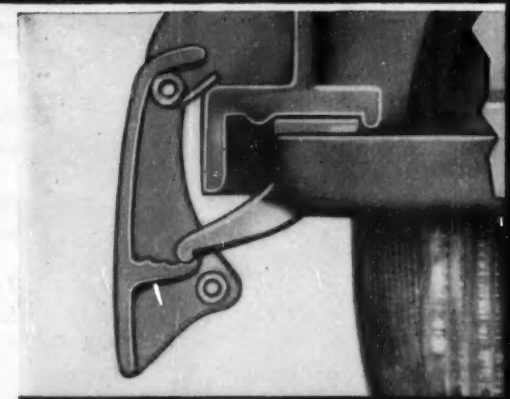
Automatic latch, both in action and take-up. As the globe is closed, the latch automatically locks in proper position. Built-in, double-torsion, stainless-steel spring provides driving power for the latch . . . and the stainless-steel leaf spring on the hinge side provides upward pressure, seating the globe tightly against the gasket.

Pressure-type terminals make sure of a tight connection without damaging the conductor.

Open-type hinge speeds cleaning time. To remove glassware, simply swing back and lift out.

Bug-proof wiring entrance. Offset pipe stop shoulder, inside slip fitter, prevents entrance of water. A felt gasket cemented to the pipe stop eliminates bugs and dirt.

J-04352-2



AUTOMATIC LATCH

Effective light control for any width street

Pioneer in the development of mercury street lighting, Westinghouse now offers practical, economical lighting regardless of application. The design and mechanical construction of the fixtures themselves play an important role in answering today's street lighting problems.

A complete range in lamp sizes, distribution patterns for any size street in any size town. ASA Types II, III and IV light distribution patterns.

Efficiency. The OV-20, first mercury street light ever developed, is unequaled in optical efficiency. Now the newest OV-60, first unit to use either the 700 or 1000-watt mercury lamp, makes practical even higher levels of illumination for the widest streets.

Cost. Higher efficiencies make possible fewer fixtures to purchase and maintain. Mechanical construction minimizes maintenance expense.

Both the OV-20 and OV-60 are sturdy—weathertight. One-piece, cast-aluminum housing adds rigidity. Weatherproof seal between housing and glassware holds cleaning to a minimum.

Maintenance. Cleaning, washing and relamping can be done without tools, without exposing the wiring or damaging the reflector. Release the automatic latch and the globe swings free. Reflector wipes clean with a dry cloth.

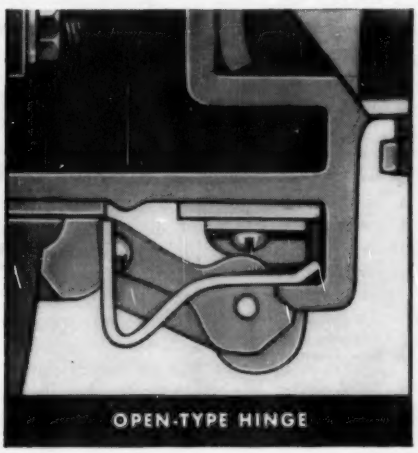
Appearance. Mounted on either concrete or metal poles, the modern design of Westinghouse mercury luminaires adds materially to the attractiveness of the area during daylight hours, as well as night. J-04352-3

It takes more than a lamp and a luminaire to provide practical, economical street lighting. The next page shows how Westinghouse can provide equipment behind the system to simplify your application problems.

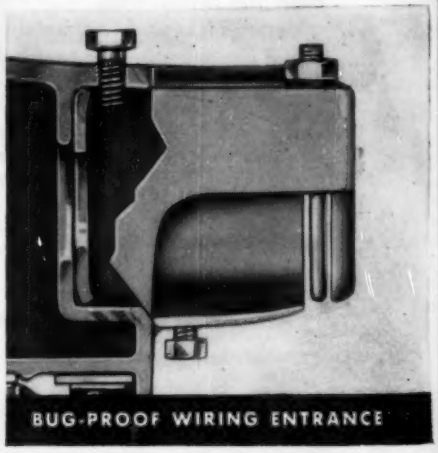
YOU CAN BE SURE...IF IT'S

Westinghouse

PRESSURE-TYPE TERMINALS



OPEN-TYPE HINGE



BUG-PROOF WIRING ENTRANCE

Matched equipment means efficiency and economy

Evidence of good system planning is the Atlantic City Boardwalk—a lasting tribute to the Diamond Jubilee of Light. This installation of OV-60's is the first of its kind anywhere in the world, utilizing the largest light source ever used for street lighting.

From the beginning, Westinghouse worked with the Atlantic City Electric Company throughout planning and layout stage. The result speaks for itself.

Because it is vital to maintain uniform high quality —and match equipment performance—Westinghouse designs and supplies everything that goes into your street lighting system. We maintain a staff of over 50 field engineers to assist you in your planning—and make available technical publications that give complete engineering and application data. We're in business to assist you.

Whether yours is a problem in planning—or in scheduled buying—call your Westinghouse representative. Regardless of your location, he is your key to assistance . . . service . . . products. J-04352-4

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Street_____

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WESTINGHOUSE ELECTRIC CORPORATION
Lighting Division, Cleveland, Ohio

From War Housing Tenancy to Home Ownership

One of several groups of permanent apartment buildings in Sidney, N. Y., built with Lanham Act funds, and recently sold by the federal government.

Effect on Communities of Federal Disposition Program

THE TRADITION of home ownership in the United States is obtaining this year a powerful impetus from experienced realtor Charles E. Slusser, Commissioner of the Public Housing Administration.

Appointed by President Eisenhower on the recommendation of the late Senator Robert A. Taft, Commissioner Slusser resigned as Mayor of Akron, Ohio, in July 1953 to direct a program involving approximately 700,000 dwelling units over which the PHA had supervision, two-thirds of them in the federally aided low-rent housing program.

There remained some 250,000 units composed of permanent and temporary war housing built under the Lanham Act and related statutes as an emergency measure for families of defense workers, and for veterans' families under the Veterans' Re-use Housing Program.

Post-war housing shortages, and the advent of the Korean War in 1950 with its revival of defense activities, had served to defer carrying out the original intent of Congress to effect disposal of these dwelling units "as expeditiously as possible." Temporary defense and veterans' re-use housing was to have been scrapped as soon as possible after the emergency, and permanent projects were to have been sold, or turned over to local housing authorities for low-rent use to shelter only the lowest income families.

This huge disengaging process of the federal government from its emergency housing programs of the war and its aftermath proved, however, to be cumbrous.

Although about 660,000 units of Lanham Act and veterans' re-use housing had been transferred to local communities, colleges, and nonprofit organizations, or otherwise removed from the Public Housing Administration's disposition responsibility when Commissioner Slusser took office last summer, he found 600 active projects still on his hands in the category of defense housing alone. There were more than 125,000 units frozen at the request of various military services in critical defense areas, and only 98,000 units were released for disposition.

Reorganization of the PHA's disposition program in order to accelerate removal of excess Lanham Act housing went into effect immediately.

The New York Field Office, supervising the Northeastern states from Maine through Pennsylvania under Director Herman D. Hillman, expanded its disposition staff from one man and a secretary to a personnel of 25, including three appraisers, a professional realty sales force of 14, and stenographic and clerical help.

Proportionate expansion of the disposition staffs took place in other regional PHA field offices in Atlanta, Chicago, Fort Worth, and San Francisco, as realty officers were recruited and embarked upon an intensive training course during the summer and early fall of 1953. Selling real estate for Uncle Sam requires specialized knowledge of federal legislation and government procedures beyond the experience and practice of most licensed operators in the realty profession.

The goal set by Commissioner Slusser for this newly recruited and trained staff in the disposition of federally owned public housing was a high one. It called for the disposition by June 30, 1954, of 57,500 dwelling units, 23,500 of them war housing units of permanent construction, 30,000 war housing units of temporary construction, and 4,000 veterans' reuse units of temporary construction.

Recent Experience of Sidney, N. Y.

This immense operation is currently bringing about a social and economic transition of significant proportions to thousands of people in scores of communities throughout the country. How this transition works, and the reactions upon both tenants and communities, are illustrated by the recent experience of Sidney, N. Y.

In the 1930's the Village of Sidney was a small community with a population somewhat exceeding 3,000, nestled amid the dairy farms on the slopes of the western Catskills. It boomed during World War II as its principal industry expanded, the Bendix-Scintilla magneto plant, which sparked most of the engines of the Air Force, as well as Army tanks and Navy PT boats. Thousands of workers were hired, and many had to commute from a radius of 50 miles or more.

The federal government, called upon for emergency defense housing, built in 1942 a project of permanent construction for 200 families, temporary housing for 160 families, and a temporary dormitory project to house 96 defense workers. Tenants paid fair rentals, out of which the federal gov-

(*Continued on page* 161)

KERRIGAN Lights the way into Beautiful, Modern HOUSTON

In Miami Beach . . . in Long Island, New York . . . in Houston . . . in large cities and in small towns . . . wherever modern-minded lighting engineers demand maximum strength coupled with beauty of design, KERRIGAN *Weldforged* Lighting Standards are chosen to light the way.

Tall, tapered, and beautiful, KERRIGAN *Weldforged* Lighting Standards will withstand the lash of hurricanes, the bite of salt and sand, and will weather both the elements and the years. *Weldforged* by Kerrigan's process, they conform to I.E.S. Street Lighting Codes and are designed to meet the highest engineering standards.

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NASHVILLE, TENNESSEE

General Sales Office — 274 Madison Avenue, New York City

New pendent lighting on Castro Street in San Francisco replaces outmoded low uprights.

Street Lighting Improvements in San Francisco, Calif.

By B. A. DEVINE
Manager and Chief Engineer
Bureau of Light, Heat and Power
San Francisco, Calif.

CONSTRUCTION, OPERATION, and maintenance of all of San Francisco's street-lighting system is under the jurisdiction of the Bureau of Light, Heat and Power of the San Francisco Public Utilities Commission, and funds, therefore, are derived from ad valorem taxes, except those for traffic-safety lights for major state and county highways within the city, which are financed by money obtained from the state gas-tax fund.

Ownership of Units

San Francisco owns approximately 20% of its street-lighting units; the remainder is owned by the Pacific Gas and Electric Company, which furnishes service and maintenance for the entire street-lighting system. The city's street-lighting construction jobs are awarded to private contractors under competitive bidding.

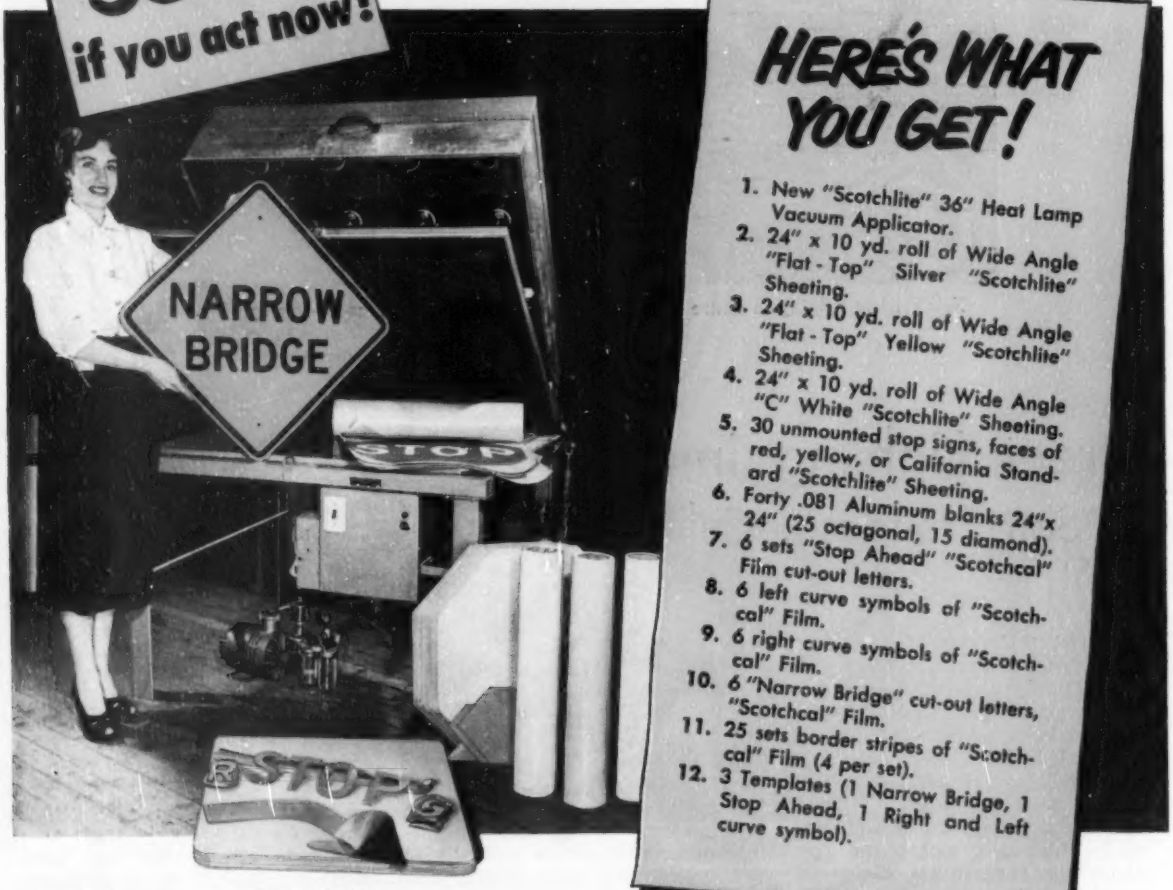
A typical new street-lighting system in a semiresidential and business district, with average vehicular and pedestrian traffic, would consist of modern tapered tubular-steel standard, with or without transformer base, and with a height of between 25 and 28 feet to the light center. The standard would be equipped with a 2-inch O.D. upsweep bracket arm 4 feet or 6 feet in length (depending on the street width) to accommodate a 2-inch slip-fitter luminaire. A staggered pattern would be employed, with spacing 135 to 150 feet between electroliers.

In the greater part of our street-lighting construction jobs we have used pendent, slip-fitted type luminaires for straight series operation, equipped for an I.E.S. Type III or IV light-distribution pattern, which includes a deflector, a clamp band globe holder and a light-diffusing short globe. Our recent trend is toward the use of short globes instead of the long globes, which had been our practice in the past. The lamps for the series

Save $562.50 on everything you need for a complete modern sign shop

A $1,500 value for just $937.50 if you act now!

Kit includes a new, modern 36" fully-automatic vacuum applicator, and complete supplies of "Scotchlite" Reflective Sheeting and sign blanks. An ideal starter kit for refinishing or reclaiming old signs—everything you need for top-quality reflectorization of signs and delineators. Write today for complete information — offer expires June 30, 1954!



HERE'S WHAT YOU GET!

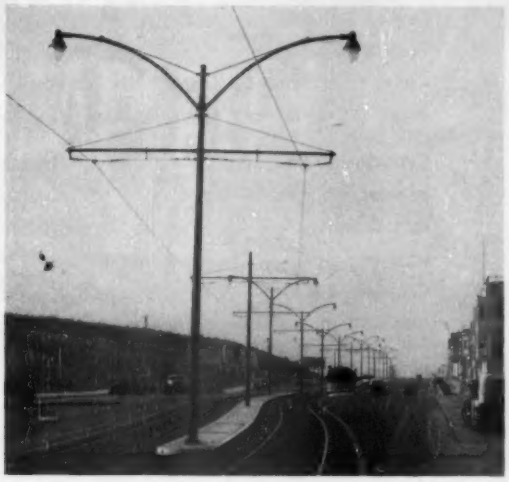
1. New "Scotchlite" 36" Heat Lamp Vacuum Applicator.
2. 24" x 10 yd. roll of Wide Angle "Flat - Top" Silver "Scotchlite" Sheeting.
3. 24" x 10 yd. roll of Wide Angle "Flat - Top" Yellow "Scotchlite" Sheeting.
4. 24" x 10 yd. roll of Wide Angle "C" White "Scotchlite" Sheeting.
5. 30 unmounted stop signs, faces of red, yellow, or California Standard "Scotchlite" Sheeting.
6. Forty .081 Aluminum blanks 24"x 24" (25 octagonal, 15 diamond).
7. 6 sets "Stop Ahead" "Scotchcal" Film cut-out letters.
8. 6 left curve symbols of "Scotchcal" Film.
9. 6 right curve symbols of "Scotchcal" Film.
10. 6 "Narrow Bridge" cut-out letters, "Scotchcal" Film.
11. 25 sets border stripes of "Scotchcal" Film (4 per set).
12. 3 Templates (1 Narrow Bridge, 1 Stop Ahead, 1 Right and Left curve symbol).

Reg. U. S. Pat. Off.

SCOTCHLITE
BRAND
REFLECTIVE SHEETING

The term "Scotchlite" is a registered trademark of Minnesota Mining and Manufacturing Company, St. Paul 6, Minn. General Export: 122 E. 42nd St., New York 17, N.Y. In Canada: London, Ontario, Canada.

3M COMPANY



Good use is made of combination trolley and street-lighting poles on this heavily traveled San Francisco thoroughfare.

luminaires are of the group replacement incandescent series type, 4,000 or 6,000 lumens, 6.6 amperes.

Cable and Control

An underground distribution series circuit is utilized to illuminate the electroliers. Circuit cable, which is installed in wrought-steel conduit, is No. 8 A.W.G. single conductor solid copper, insulated for 5,000 volts with a polyvinyl chloride thermoplastic insulating compound 10/64ths of an inch thick, in accordance with the Insulated Power Cable Engineers Association specifications for wire and cable with rubber and rubber-like insulation. The circuit is energized from a supply system through a 6.6-ampere constant-current transformer, which is controlled directly through pilot wires from the power station, or by the cascade method from an adjacent street-lighting circuit.

Modernization Program

A few years ago the city entered upon a program to modernize approximately 1,000 of its upright fluted metal electroliers with 10,000-lumen lamps on streets with fairly heavy traffic. The modernization, about completed, consists of converting the old upright shaft to a pendent type by welding a 5-foot extension on the existing shaft and attaching a 6-foot upsweep bracket arm, using a pendent slip-fitter luminaire with a 6,000-lumen lamp. This arrangement enables us to get much more useful light on the street surface, where it is needed.

To eliminate as many poles as possible from the city streets, it is our custom to utilize combination poles for both trolley-wire support and street lighting.

It is our practice, because of the corrosive atmospheric agencies, to install reinforced-concrete standards in areas adjacent to the Pacific Ocean coast line. The old, existing upright standards are being modernized to the pendent-bracket type.

Lighting of the major, heavily traveled thoroughfares with a center island strip is provided by use of double-arm pendent-type electroliers, installed along the center strip.

The present lighting of San Francisco's principal shopping district is furnished by the ornamental upright standards with 10,000-lumen lamps mounted in 2- and 3-light luminaires.

The only street lighting other than incandescent in use in the city at present are 16 mercury-vapor electroliers on streets surrounding Union Square Park in the downtown area, and four fluorescent units recently installed at the Main Entrance to Golden Gate Park. If funds are made available, it is planned to relight one mile of outer Market Street with fluorescent luminaires.

Five Died Before, None Since

IN THE TWELVE MONTHS before new street lights were installed on Duss Avenue, in Harmony Township, Pa., there were five traffic fatalities. In the six months since, there have been no fatal accidents. In addition, we have received many compliments regarding the new street lights from people who use Duss Avenue.

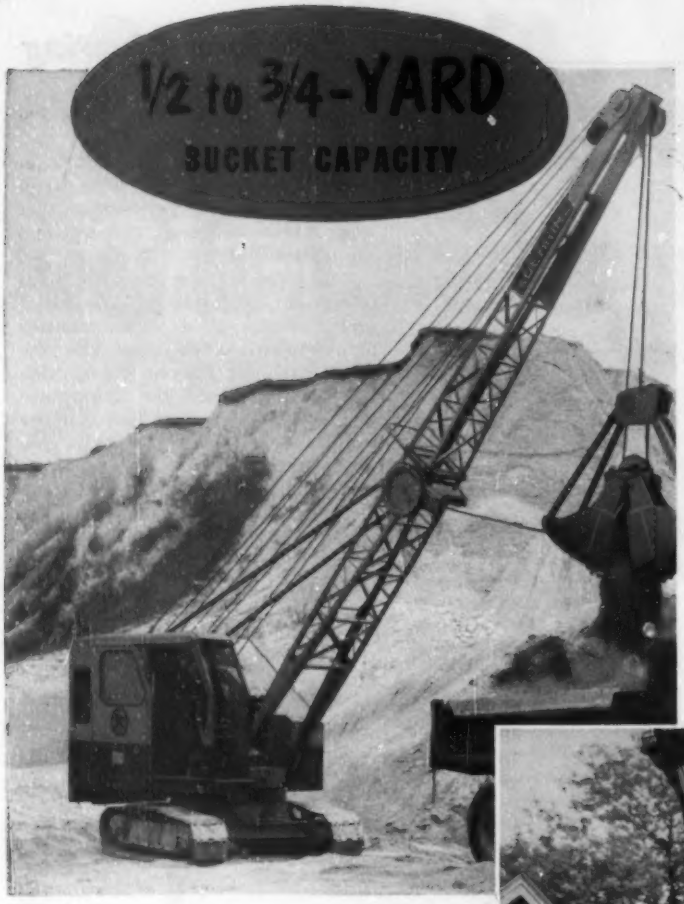
Industrial plants in the Ambridge-Beaver County area contribute many of the 1,200 vehicles per hour on this thoroughfare between Pittsburgh and the Beaver Valley.

Convinced of the need for improvement, the roadway was widened and the Board of Commissioners agreed to relight the street. The new street lighting has improved visibility and changed the appearance of the street. Pedestrians can see cars in time to avoid accidents. Motorists see pedestrians and objects much more quickly than before the street was relighted.

EUGENE MCKELVEY, *President*
Board of Commissioners
Harmony Township, Pa.

(*For additional articles on Lighting, see page* 139)

A modernized electrolier, showing a 5-foot shaft extension with upsweep bracket arm and slip-fitter luminaire, brings more light to San Francisco's streets.



NEW Koehring 205 with 10 tons of lift capacity on crawlers (15 tons on rubber) has plenty of power, strength and stability to handle ½ to ¾-yard clamshell and dragline buckets on a wide work radius. Boom lengths range from 30 to 50 feet on the 205 crawler crane (25 to 55 feet on truck crane).

Crawler-mounted 205 with either standard or extra-long crawler frames, takes 16, 20 or 24-inch shoes . . . gives you ground-bearing pressure as low as 7.4 pounds per square inch. Crawlers are self-cleaning, have double-faced steel rollers, and high-carbon cast-steel shoes.

If mobility is needed the 205 is available on rubber . . . gives you the *plus* advantage of 15-ton lift capacity and 32½ m.p.h. travel speeds for clamshell, dragline and lift crane work. Converts to ½-yard shovel or hoe. Better look into this rugged new machine today.

With HEAVY-DUTY 205 you also get:

- **Full-rotating fairlead on dragline.**
- **Power boom lowering optional.**
- **Big 20-inch clutches, self-adjusting.**
- **Only 2 major shafts in upper machinery — simple, accessible.**
- **Antifriction power flow for dig, hoist, swing, and travel.**
- **4 hook rollers, eccentric adjustment.**
- **Automatic traction brakes.**
- **Independent traction, optional.**

PROVED *by 2 years of thorough field tests, Koehring 205 brings you this 10-to-15-ton capacity at only "½-yd." price. Get complete details from Koehring distributor, or write.*

To: KOEHRING COMPANY, Milwaukee 16, Wisconsin
Send us bulletin on the new heavy-duty 205.

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DIVISION _____
STREET _____
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NEW! COMPLETE!

Your guide to

SPUN-DRAWN

Aluminum
Street Lighting
Poles

UNION METAL
CATALOG
NO. 85

- Presents complete and easy-to-read information on Union Metal's extensive line of aluminum street lighting poles.
- Describes Monotube aluminum pole design and construction—spun-drawn process, strength, material, finish.
- Offers detailed engineering tables covering anchor and transformer base type poles. Also, bracket and pole accessory information.
- Important reading for everyone in municipal, utility and engineering activity who has a stake in street lighting.

Use the handy coupon, or write to The Union Metal Manufacturing Co., Canton 5, Ohio.

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Monotube Lighting Poles

THE UNION METAL MANUFACTURING COMPANY
Canton 5, Ohio

Please send me Catalog 85 on Union Metal Spun-Drawn ALUMINUM street lighting poles.

Name_____ Title_____

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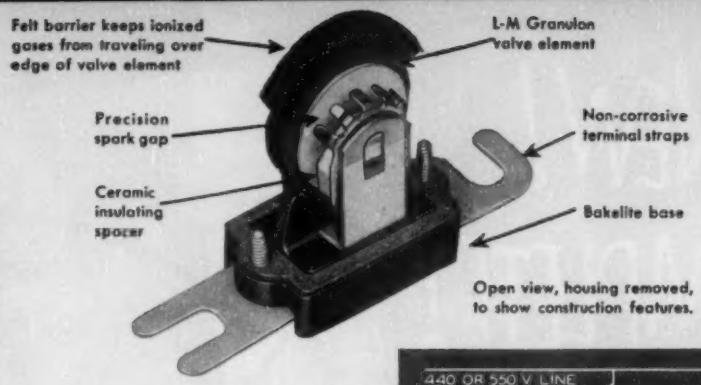
New L-M Type L Signal Arrester

—1¼ Times Actual Size


Felt barrier keeps ionized gases from traveling over edge of valve element
L-M Granulon valve element
Precision spark gap
Non-corrosive terminal straps
Ceramic insulating spacer
Bakelite base

Open view, housing removed, to show construction features.

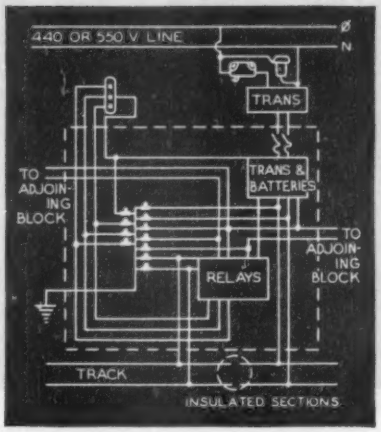


Diagram shows application of L-M Type L Signal Arresters to an automatic block signal control. Arrester may also be used to protect relays on station and yard lighting systems.

KEY TO DIAGRAM

- Signal Lightning Arresters
- Distribution Lightning Arresters
- Secondary Fuse Cutouts

L-M's Low Voltage Lightning Arrester Designed for Signal System Protection

L-M's new Type L Signal Arrester is a valve type arrester that provides excellent lightning protection for low voltage circuits up to 30 volts DC or 175 volts AC. The arrester meets all requirements of the AAR Signal Section Specifications 52-51.

The Type L provides protection for railway signal circuits, low voltage track and line circuits, and centralized traffic control circuits. The arrester assures dependable, complete protection of line and track relays, track transformers, and battery circuits. Although it is primarily designed for railway signal systems, its versatility permits it to be easily applied to other low voltage systems, such as fire alarm circuits, airport lighting circuits, meters, and relays.

The L-M arrester has high discharge capacity to drain off lightning surges and protect equipment. It also provides rapid interruption of the DC or 60-cycle AC current that follows the lightning surge path to ground.

Visual Inspection

172

The arrester is watertight, sealed in a transparent plastic housing, which makes possible instant visual inspection. It consists of a precision spark gap; a valve element, the same as used in L-M's distribution arresters; a strong bakelite base; and noncorrosive terminal straps. It is designed for, and available with, the standard AAR porcelain mounting block.

The Type L arrester has a consistent impulse sparkover of 2700 volts, well below the 3400-volt AAR specification. A minimum 60-cycle sparkover of 1100 volts permits circuits to be tested with 1000-volt meggers without removing the arresters from the circuit.

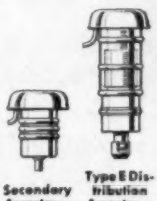
Each arrester easily withstands the duty cycle test of 30 shots of 1500 surge amperes on a 10 x 20 microsecond wave without changing its characteristics.

Get Complete Information

Details of the design, features, and application of L-M's Type L Signal Arrester are covered in an informative Bulletin LA6. Ask the L-M Field Engineer for a copy; or write Railway Sales Division, Line Material Company, Milwaukee 1, Wisconsin (a McGraw Electric Company Division).

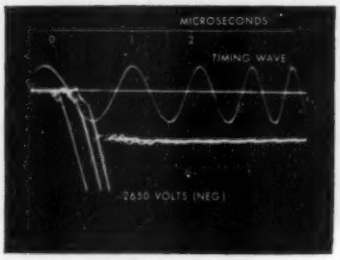
Other L-M Lightning Arresters

Line Material Company makes a complete line of lightning arresters for signal systems, secondary, and primary distribution systems. If you are interested in these, also ask for copies of Bulletins LA2, LA4.

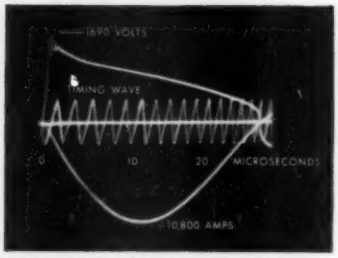


Secondary Arrester—0 to 650 Volts

Type E Distribution Arrester—3 to 15 kv



Impulse Sparkover of Type L Arrester. Oscillogram shows three successive shots on a wave rising 10 kv per microsecond. Note that all sparkover values are equal.



Discharge capacity withstand showing the Type L Arrester passing a 10 x 20 microsecond wave of 10,800 surge amperes (AAR only specifies a 5 x 10 ms wave). The IR drop curve shows the arrester withstanding the discharge.

LM® LINE MATERIAL *Lightning Arresters*

New Steel Pole Sections on Old Bases Carry Seattle's New Mercury-Vapor Lights

ONE THOUSAND two hundred and sixty-four old-style incandescent lighting fixtures on 23 downtown streets in Seattle, Wash., have been converted to mercury-vapor illumination with a minimum of bother and expense. Foot-candles average 2.5, or more than twice the standard IES lighting code requirement for streets of heavy vehicular and pedestrian traffic.

Conversion of the old light poles have been made by adding a specially designed and fabricated extension to the old bases and lower pole sections, after the upper pole sections and old fixtures are removed. Use of the old bases and lower sections saved considerable time and money.

Completely new poles would have necessitated the rewiring of all traffic-signal controls, fire-alarm boxes, and communication systems mounted on the lower portion of the existing poles. The only adaptation necessary when using the old poles (other than the extension itself) is new wiring from the junction box in the old bases to the fixture .

The 15-foot-long extensions slip over the old poles, increasing the height of the fixture to 30 feet above the curbing, compared with the previous height of 21 feet 11 inches. The brackets are 6 feet in length, extending the lamps to a position approximately 4½ feet out from the curb.

These extensions were fabricated to specifications of the Engineering Department of the City of Seattle by the Pacific Car and Foundry Company of Renton, Wash. The extensions are 12-sided, fluted poles of hot-dip galvanized steel, with cast-steel cap and bracket holder, also hot-dip galvanized. A curved 2-inch galvanized pipe welded into the holder forms the bracket arm. Incorporated in the bracket holder is a junction box for joining the wires from the power source, the lamp, and the ballast. An access door on the junction box seals it from the weather. The ballast is located on top of the bracket holder, on the topmost part of the pole, and is held by a cast-steel ornamental cap secured with four bolts.

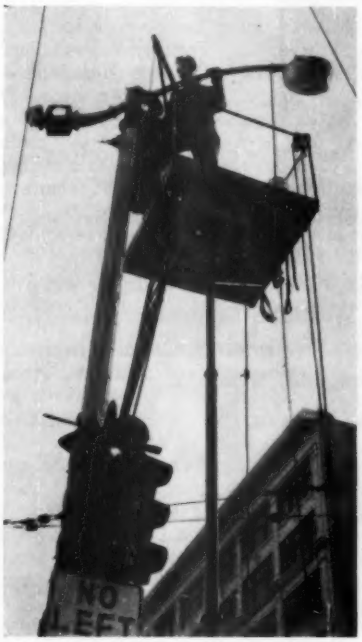
The fixtures used are General Electric Form 109 luminaires with EH-1, 400-watt mercury-vapor lamps of 20,000 lumens. The contract for the manual conversion of these poles was awarded to the Donald Close Company of Seattle, and work, which started in August 1953, was completed during March of this year.

The old poles were of three types: concrete-filled bronze poles and bases; hollow steel (bronze sheathed) with bronze bases; and hollow steel (bronze sheathed) with cast-iron bases, and all were not suitable for modernization.

The cast-iron bases were deteriorated and had to be replaced. The poles with the bronze bases were suitable for conversion, excepting those bent, cracked, or otherwise damaged beyond repair. Some juggling of old poles and bases was necessary in order that all poles on each street would be uniform in design.

Concurrent with this program, an additional 266 old concrete poles were removed and replaced with a new installation of standard model Carco steel light poles. With these two projects completed, the entire central business district is now served with mercury-vapor illumination.

Several other installations on arterials and streets with high night pedestrian fatalities or high night crime rates, round out the City of Seattle's mercury-vapor street-lighting program. It comprises over 15 miles of first-class downtown area lighting, and a total of 330 miles of mercury-vapor illumination.

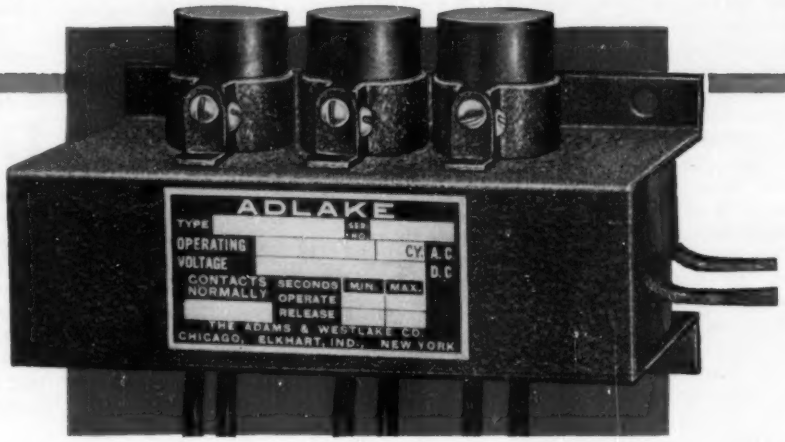


After the old fixture has been removed and the new pole sections installed, the bracket and fixture, shown here being mounted on top of the new pole extension, are installed. The fixture and lamp are mounted on the bracket before being hoisted into place. A special elevator rig, built by the Donald Close Company, of Seattle, Wash., serves as a working platform. Note that existing traffic signals remain in operation and do not have to be relocated when a new pole extension is added.

Fourth Avenue, Seattle, Wash., with the heightened poles that carry new mercury-vapor lights. Readings show an average of 2.5 foot-candles with the new illumination.

Good-by

to all maintenance problems with ADLAKE Mercury Relays!



Type 1133 ADLAKE three pole load relay... contact normally open

● **Thanks to their positive,** leak-proof sealing... their sure-fire mercury-to-mercury contact ... their immunity to normal vibrations and temperature changes... thousands of satisfied users in every branch of industry can testify that ADLAKE Relays literally *need no maintenance whatever!*

ADLAKE Relays have won their place by *proven* dependability—year in and year out—in jobs that conventional relays can do in an uncertain manner at best! For every ADLAKE Relay is tested—and guaranteed—to meet specifications!

Yes, in chick incubators or diesel locomotives—for street traffic control or long-range navigation—wherever sensitivity and dependability are required—you can count on ADLAKE. Send for complete ADLAKE Relay catalog today... write The Adams & Westlake Company, 1176 N. Michigan, Elkhart, Indiana. In Canada, write Powerlite Devices, Ltd., Toronto.

Adlake TRADE MARK 97th year of serving the transportation and building industries

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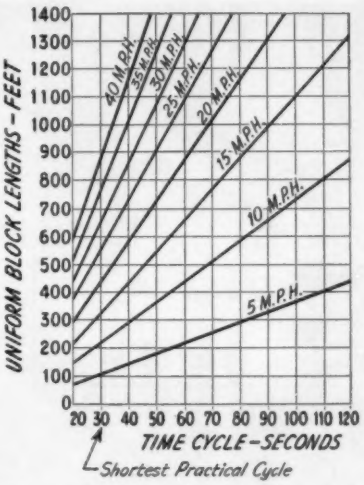
Established 1857 • ELKHART, INDIANA • New York • Chicago
Manufacturers of ADLAKE Hermetically Sealed Mercury Relays

Let's Answer Some Traffic Signal Questions

RECOMMENDATION No. 10 in the 1953 report of the Boston, Mass., Citizens' Traffic Committee reads: "We recommend that the Boston Traffic Commission expedite the flow of traffic in the downtown district by providing more modern and flexible timing devices on its signal light system."

What does this mean in the practical terms of how to obtain it in any city?

A good deal of the equipment in operation today was purchased and installed before the advent of the so-called flexible or expansible traffic controllers. The increase in the number of automobiles using our city streets, the industrialization of many cities, new housing projects and building developments, the construction of an Army or Navy base near a city, tourist travel in many cities —all coupled with the normal growth of a city or community—have in many cases rendered much existing traffic-control equipment inadequate. And, in most cases such equipment is incapable of being modified to handle the new problems.



Time cycles for various progression speeds where blocks are of uniform length.

The obsolete traffic-control and signal equipment is often only part of the problem. The city streets are just not large enough. Adoption of off-street parking places, one-way streets, channelization, parking restrictions, and re-routing of traffic go hand in hand with the use of modern flexible control equipment.

A city or community purchasing new traffic-signal and control equipment has much the same problem as that of a parent buying clothes for a growing child. Each parent is concerned as to whether or not the clothes bought today will fit little Jimmy or Jane next year. Similarly the city or the community must be sure that the control equipment bought today will handle next year's traffic problems. With this in mind, each city should be sure that the equipment bought can be expanded to handle more complex problems as the situation changes. Chicago, Detroit, New York, Nashville, St. Paul, Cleveland, Kansas City, and others have realized the importance of this consideration and have modernized their systems with expansible control equipment.

Generally speaking there are two types of traffic-control equipment that a community can consider: pre-timed, or fixed-timed, and the traffic-actuated controllers. For downtown areas, which is the problem at hand, pre-timed equipment is usually employed. The use of pre-timed equipment presupposes knowledge of the volume of traffic flowing through each intersection and how this volume splits among streets. This information, in addition to the knowledge of when during the day important traffic-flow changes occur, enables the traffic engineer to set each controller to give the proper length to the green, yellow, and red lights to attain the most efficient operation of the intersection. Knowing when important changes occur, he can automatically, with the use of modern equipment, change from one sequence of signal indication to another with a different timing of each interval.

With the knowledge of the flow of traffic inbound and outbound on an arterial street running through a city, pre-timed traffic-control equipment can be set at intersections along this thoroughfare and timed so to allow the progressive flow of traffic either inbound, outbound, or in both directions, as the condition dictates. In the latter case, it is often found plausible to use vehicle-actuated equipment, especially of the coordinated semivehicle-actuated type. These controllers lend themselves quite readily and efficiently to the operation of an interconnected progressive movement of traffic.

Should traffic-signal installations and small street improvements be made before needed for proper spacing between signals, rather than wait for traffic to increase at points of poor spacing?

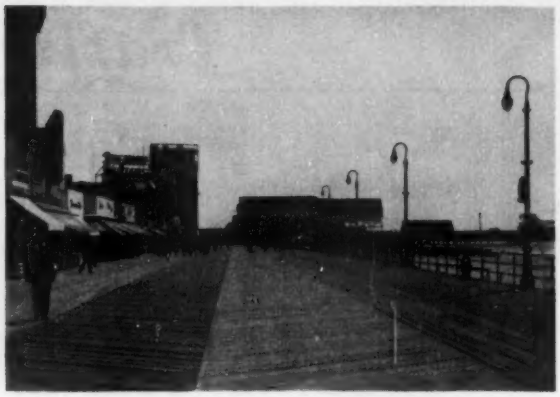
Yes, as on an arterial street that carries heavy traffic to and from the city—perhaps commuters. To effect speed control as well as the efficient movement of traffic, assume that a coordinated progressive signal installation is contemplated. To effect this installation it will be necessary to put signals only at certain intersections on this thoroughfare. Maybe every 800 or 900 feet an intersection would be signalized on this thoroughfare.

Now, if the city contemplated reconditioning, resurfacing, or general improvements on any of these cross-streets, it would be well to do those intersections at

(Continued on page 145)

New Attraction
on Atlantic City's Boardwalk

HY-LITE Lighting Standards



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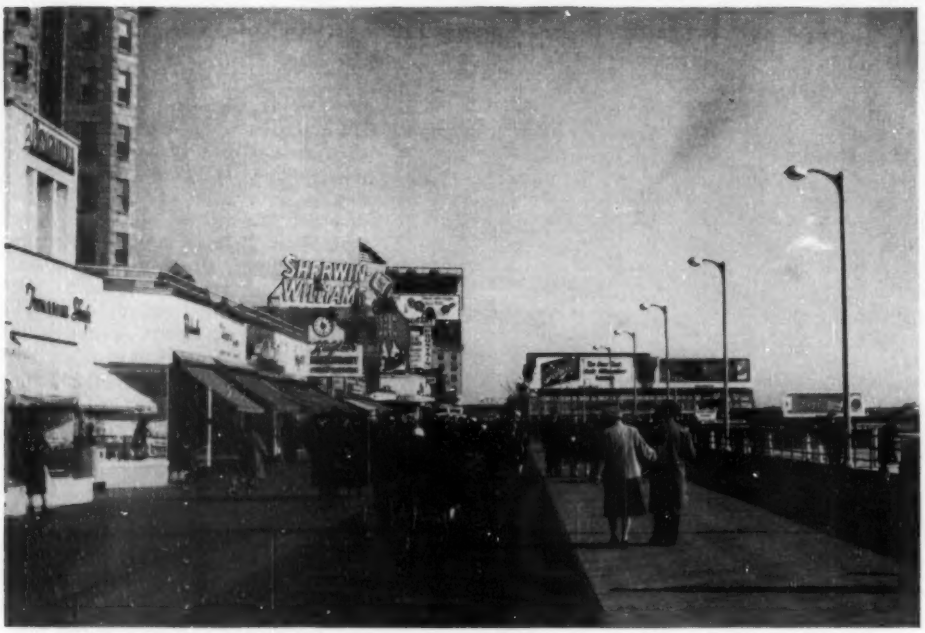


◀ AFTER

Now referred to as the "Great Light Way", Atlantic City's Boardwalk boasts 123 Spun-Crete Hy-Lites which recently replaced old style poles. Hy-Lite Standards, and fluorescent-mercury units mounted on concrete brackets, combine to offer the latest advancement in modern street lighting.

ATTRACTIVE Hy-Lite Lighting Standards are a bright attraction assured of a long "run" on Atlantic City's famous Boardwalk.

In conjunction with Atlantic City's Centennial Celebration and the Diamond Jubilee of Light, economical Hy-Lites have been installed to replace obsolete lighting standards.

These Hy-Lites successfully combine *prestressing* with the Spun-Crete process to provide —prolonged freedom from internal corrosion, minimum contraction or expansion under extreme temperature changes, and a durable water-polished granite standard completely immune to salt water corrosion.

Available in various designs, Hy-Lites meet *any* street lighting need and contribute to attractive street appearance while requiring virtually no maintenance whatever. Write today to the American Concrete Corporation, 5092 North Kimberly Avenue, Chicago 30, Illinois, for information regarding the latest *prestressed* Spun-Crete designs.

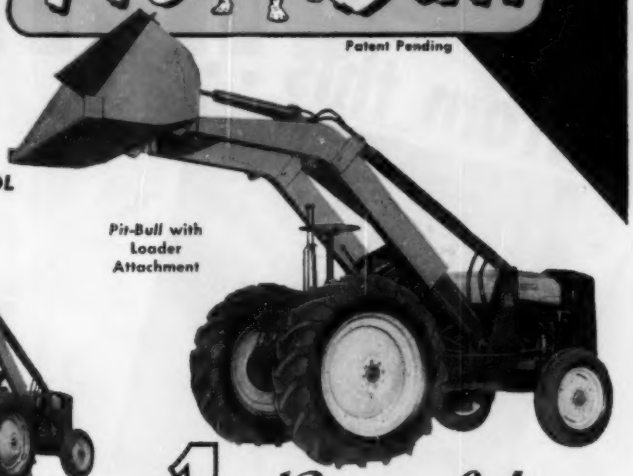
American Concrete

PRESTRESSED CONCRETE LIGHTING STANDARDS

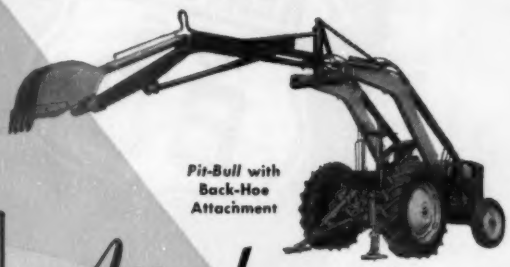
New! The Davis Pit Bull

Patent Pending

- MOUNTS ON REAR OF FORD OR FERGUSON TRACTORS
- FOUR SPEEDS EACH DIRECTION
- INSTANT REVERSING
- CLEAR VISION... PERFECT CONTROL
- HIGH QUALITY... LESS COST!



Pit-Bull with Loader Attachment



Pit-Bull with Back-Hoe Attachment

11 Attachments... to 1 Basic Unit

Trencher Attachment

Roller Attachment

Rotary Broom Attachment

Dozer Attachment

Swinging Crane Attachment

Fork Lift Attachment

Post Auger Attachment

Hammer Attachment

Rotary Mower Attachment

Model 100 Front End Loader

REPLACES HIGH-INVENTORY EQUIPMENT

Here's the profitable answer to high-cost equipment. It's the Davis ***Pit-Bull***, a top-quality hydraulic basic unit with eleven easy-to-change attachments designed for greater versatility, maneuverability, visibility and performance at only a fraction of the cost of conventional equipment. The ***Pit-Bull*** completely converts your Ford or Ferguson tractor into a powerful industrial unit with all attachments designed and closely coordinated with the basic unit to make changeovers quick and easy. You buy only the attachments you need. Cab is available as extra equipment. A syncro-mesh transmission gives you four speeds in each direction *plus* extra power for digging and loading, and also permits you to change directions instantly without shifting gears. The steering mechanism and seat arrangement, *plus* easy-to-handle control levers, allow the operator to be comfortable and have clear vision with finger-tip control of both the tractor and ***Pit-Bull*** at all times. It's a quality performer with an eye for profit!

MORE JOBS WITH LESS MEN AND MACHINERY

The Davis ***Pit-Bull*** is a payroll saver, too. It's strictly a one-man machine that's always on the go! When it's not digging, it can be loading, trenching, sweeping, or on any of a dozen jobs... the attachments are so easy to change there's little time lost in getting on to another job. Compare ***Pit-Bull***, pound for pound, dollar for dollar; you'll see why it's called the high-quality unit that replaces high-inventory equipment. *Ask for a demonstration.*

The Davis Pit-Bull is manufactured by the makers of the Davis Model 100 Loader, America's quality front-end tractor loader.

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Send me literature on the Pit-Bull ☐ I would also like literature on the DAVIS Model 100 Loader to fit a

_____ tractor.

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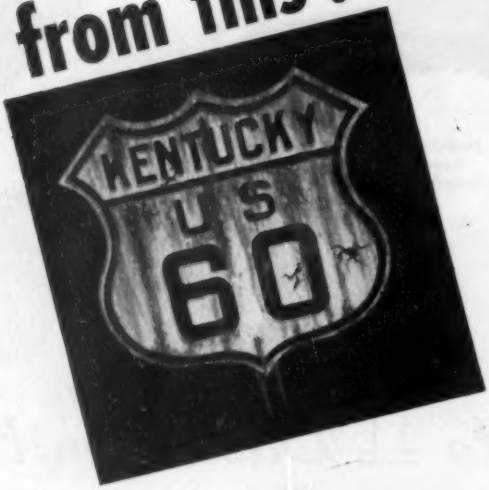
CITY_____ STATE_____

PB-1

MID-WESTERN INDUSTRIES, INC. 1009 SO. WEST STREET WICHITA, KANSAS

CHANGE

from this . . .



to this . . .

SH

in ½ the time at ½ the cost

PRISMO MONO-PRINTER

Reduce work and cost to absolute minimum in manufacturing silk screen signs. Automatic layout and precision registration insure perfect results. Ideal for all state, county, municipal and commercial sign makers.

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Set your highway signs and markers a-gleaming with a coat of brilliant, reflective Prismo. Existing personnel and equipment can rejuvenate signs in a jiffy with rain-pruf Reflecto-Kit. In half the time, your signs can sparkle with an all-hour, all-weather protective coating. The low initial cost and the exceptional long life (5 to 7 years) of Prismo materials lets you apply "safety" to your signs at a fraction of the cost of any other marking material.

THE SPHERE of SAFETY

PRISMO

SAFETY CORPORATION

HUNTINGDON, PENNSYLVANIA

(*Continued from page* 141)

which the signalization was planned for the main thoroughfare. This would encourage cross-street traffic to use those particular streets. Then the signalization, when carried out, will serve not only the progressive flow on the main thoroughfare, because of ideal spacing, but also control the streets on which the cross-street traffic prevails.

Discuss traffic-signal synchronization for progressive movement of traffic on main boulevards.

The proper operation of a coordinated traffic-control system is dependent on the distance between signalized intersections, the operating time cycle, and speed of progression. To show the interrelation of these factors, consider a uniform block spacing of 900 feet, a time cycle of 60 seconds, a speed of progression of 20 miles per hour, and a 50% offset between intersections. A 50% offset has been selected so as to provide simultaneous progression — that is, the progressive movement of vehicles in both directions. Now, assume that for some reason it is desired to go to a 90-second time cycle. As a result, with the same block spacing, a vehicle will have to travel at a speed of approximately 13 miles per hour to maintain the same offset relationship. This follows because, due to the added cycle length, a driver must now take a little longer to get to the next intersection.

Now, assume that the time cycle remains at 60 seconds and that the block spacing is increased to 1,100 feet. A driver must, in order to maintain the same offset relationship, go a greater distance in the same amount of time. Consequently, the speed of progression increases to 25 miles per hour. Finally, if the block length is held constant and a speed of progression of 25 miles per hour is desired, the time cycle will have to be shortened to 50 seconds. Therefore, changing any one of the three basic factors will result in a change in both of the others. This relationship is brought out in the chart on page 141.

Explain offset timing.

Offset timing refers to the timing relationship between signals in a given system, or the amount of time that the green interval at one intersection lags (or leads) the corresponding green interval at a second intersection.

The accurate maintenance of the proper offset timing relationship between intersections is most important to the success of a signal system in moving traffic progressively from one intersection to another. On radial or arterial thoroughfares where the flow of traffic is predominantly unidirectional during rush hours, changes in offset prove both desirable and effective. As an example, consider the street where traffic is predominantly inbound toward the center of the city during the early morning, but reversed during the evening rush hours. Between times, traffic flows in about equal quantities in both directions.

Usually the "ideal" time cycle, as derived from the accompanying chart, is much too short to be practical. It is necessary, therefore, to make some compromise where only a reasonable amount of traffic will be moved progressively.

Providing controls with what is termed the "triple offset" feature allows a system to provide three different offset timing relationships. As an example, offset 1 would be used during the morning rush hour when inbound traffic would be favored at the expense

(*Continued on page* 149)

Do you use ALL the tools of the trade?

THE WALD

TRUCK-O-LINER

is the world's most advanced striping machine

For your BIG striping jobs, plan economy right into your striping procedures by utilizing the industry's fastest, most efficient striping machine . . . the Wald Truck-O-Liner, Model 345! One, two or three lines—solid or intermittent or a combination of both (6 to 36 inches)—in one or more colors of reflective or non-reflective marking materials may be applied in one integrated operation. The material tanks, engine, compressor, etc. are grouped in convenient, packaged units on this machine so they may be removed from your standard truck, thus freeing it for other work when you are not striping. For speed, versatility and top-quality, economical results . . . buy the Wald Truck-O-Liner—the last word in striping equipment.

REFLECTO-LINER MODEL 12

A Wald beauty for any striping operation. Uses either plain or reflective paints . . . a fast "super single-liner" in a class by itself.

Write, wire or phone for full details today.

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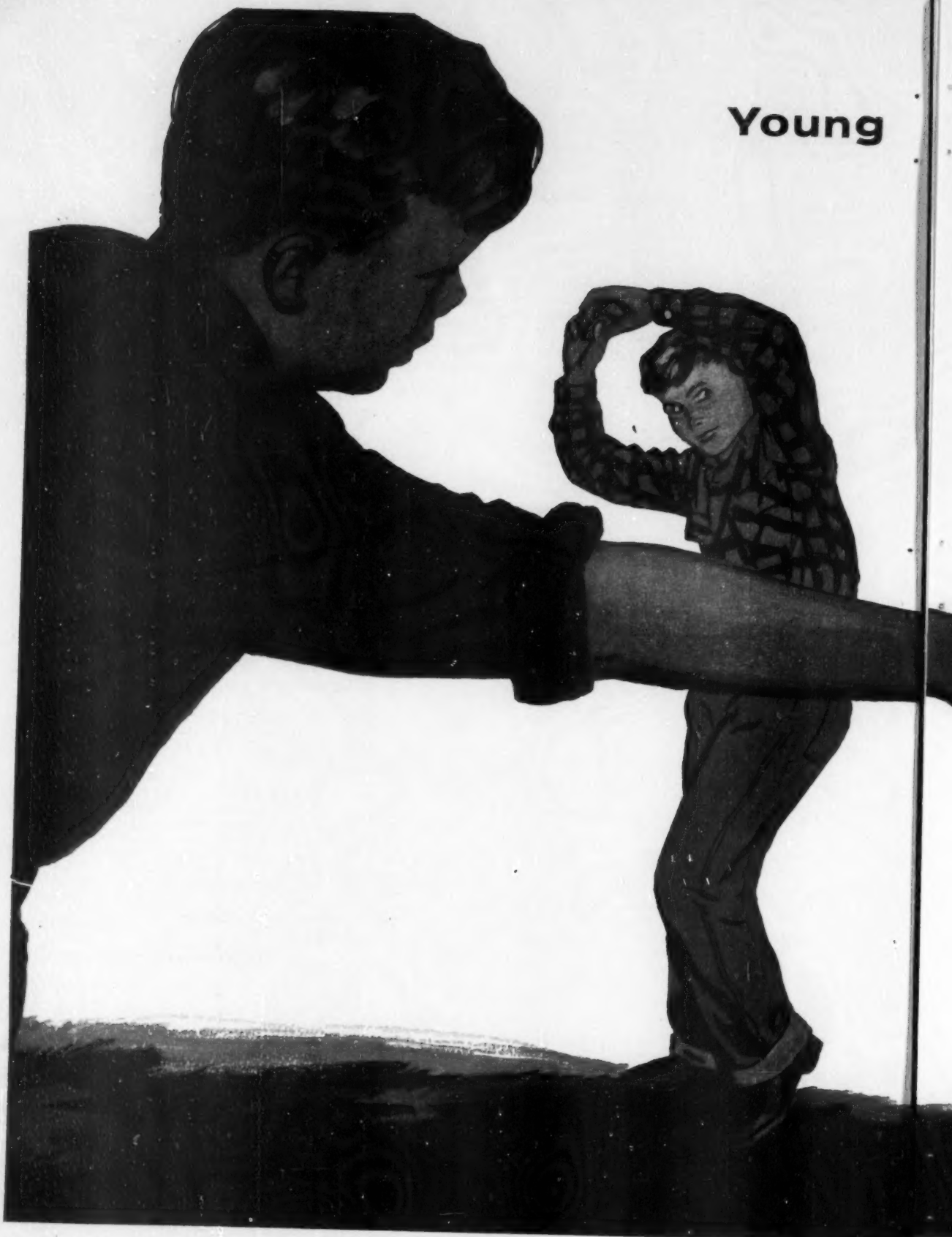
Young

pitchers were ruining signs

until Highway Engineers tried Alcoa Aluminum Sign Blanks

The "clang" of stone striking steel may be music to a young marksman's ear—but it can sound the death knell for ordinary highway signs. For once the paint film is chipped, relentless rust sets in—destroying legibility and eventually the sign itself.

Prompt and costly repainting is one answer. Traffic engineers in *24 states* have found a better one—Alcoa® Aluminum. Since Alcoa sign blanks can't rust, there is no progressive peeling of paint, no damage to metal when the message film is breached. Any needed repairs can wait indefinitely while the sign stays on the job. And because aluminum weighs only half as much as steel, important savings are also realized on shipping and erection.

GET COMPLETE INFORMATION

Contact your local Alcoa sales office for full information on Alcoa highway sign blanks, including price and size data. Your Alcoa sales engineer is prepared to work with you on problems of fabrication and finishing for signs and markers, as well as bridge railings, gratings, lighting standards, barricades and fencing of Alcoa Aluminum. Write for the booklet, *Highway Accessories of Alcoa Aluminum*. ALUMINUM COMPANY OF AMERICA, 1976-F Alcoa Building, Pittsburgh 19, Pennsylvania.

ALCOA ALUMINUM

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MAKE IT EA$Y FOR YOUR CITY

with an easier system for collecting fines!

With the ever increasing number of vehicles on streets and highways... in addition to adequate parking facilities and traffic controls... a more efficient method of assessment and collection of minor violations is required. To maintain progress... Duncan Parking Meter Corp. is now INTRODUCING A PRACTICAL SYSTEM FOR THE COLLECTION OF FINES... the DUNCAN FINE-O-METER

EASY... and accurate accounting for fines... with reduced clerical personnel and equipment.

EASIER... for the motorist... convenient... no stamps... no money orders... no trips to police station.

EASIEST... method of creating goodwill... eliminates any embarrassing situations.

EASIER... installation... attaches without removal of meter head on any standard post.

EASY... collection of all minor traffic offenses.

BOOK OF TICKETS
Collection system includes pre-numbered ticket-envelopes with city imprint.

Our traffic specialists will gladly give you all the details — personally or by correspondence.

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835 NORTH WOOD STREET CHICAGO 22, ILLINOIS U. S. A.
Makers of the DUNCAN-AUTOMATON fully automatic and the DUNCAN-MILLER manual parking meters

(*Continued from page* 145)

of outbound traffic. During off-peak hours, or during most of the day, the optimum average offset would be used to provide a reasonable flow of traffic in both directions. The third offset would be used during evening rush hours to favor outbound traffic. Change of offset timing will increase the capacity of the street in the favored direction, due to the more efficient movement of vehicles in that direction.

Discuss types of coordinated systems.

Systems of *interconnected controllers* prove most effective in downtown areas and along arterial streets as they automatically provide for "positive coordination" at all times. If for any reason an interconnected controller should "fall out of step," the offset circuits automatically re-synchronize it with the rest of the system. The synchronism, or "in-step relationship," of each controller is checked once each cycle. In addition, interconnection provides accurate *central control* of the system from some convenient location.

In a *noninterconnected system* the controllers depend on the continuity and maintenance of electric utility frequency and voltage for synchronization. Generally speaking, noninterconnected controllers will keep "in step" as accurately as electric clocks keep time. Due to unauthorized tampering or momentary heavy line surges, one or more controllers occasionally may gradually fall "out of step" with the rest of the system. Restoration of the proper coordinated timing (without interconnection) requires manual re-synchronization of each controller that has fallen "out of step." Obviously, an interconnected system that corrects these errors automatically is much to be preferred. However, economics frequently dictates the adoption of a noninterconnected system.

Discuss density-actuated signal applications.

There is no dividing line between the use of conventional full vehicle-actuated control equipment and what is commonly called the "Density Type" vehicle-actuated control equipment. The latter controller should be considered where the capacity of the intersection is taxed and the control equipment must, as closely as possible, apportion the right-of-way in accordance with the natural flow pattern of the intersection.

Discuss modern downtown central control.

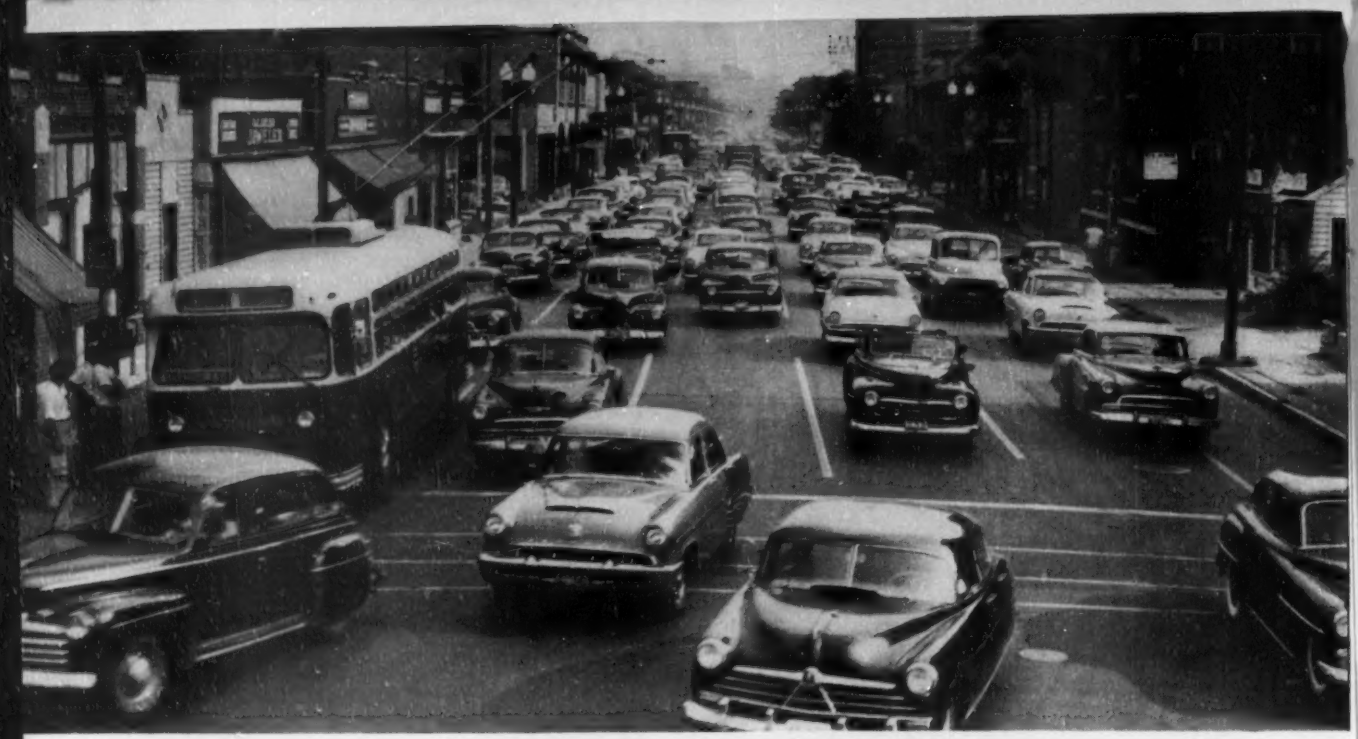
Modern downtown control finds mostly pre-timed equipment in operation. However, Denver, utilizes a system whereby vehicle-actuated and pre-timed control equipment have been combined. The vehicle-actuated equipment acts in a supervisory capacity, determining the proper time cycle and offset with respect to changes in traffic volume. The pre-timed equipment performs the timing and change of color intervals.

New York's First City-Owned Shopper's Lot

THE FIRST PARKING LOT in what is expected will be an extensive off-street program of the New York City Department of Traffic was opened April 27, 1954, only a block from the shopping center of Flushing in Queens Borough and near enough to the I.R.T. subway into Manhattan to attract all-day parkers.

This is New York's first entry into the parking-lot business in a shopping center in any of the five bor-

New York's first city-owned shopper's lot is lighted by 33 G-E mercury-vapor luminaires on P & K lighting standards. Insert: A sample of 776 Magee-Hale Park-O-Meters installed on this lot and a parking-meter rate sign strapped to a P & K standard.



What can be done to unsnarl transit streets and make service faster, more convenient?

Everybody stands to gain if transit routes can be cleared to give transit vehicles freedom of movement. "Preference drivers" are more apt to become transit riders, and traffic congestion and parking problems minimized.

First, however, active support of community leaders is needed for measures which make possible faster, more convenient service:

*Eliminate parking, stopping and on-street loading and unloading of vehicles wherever and whenever it interferes with the free movement of transit vehicles.

*Eliminate left-hand turns in congested areas, and right-hand turns across the front of transit vehicles at stopping points.

*Regulate traffic and signal arrangements to enhance transit flow, and, in some cases, it even may be desirable to devote certain lanes exclusively to transit, to provide a fast, open lane for the efficient movement of transit vehicles.

It's of vital importance to include effective use of transit in any program aimed at relieving traffic congestion and parking problems . . . vital to the growth and well-being of cities, today and tomorrow. General Electric Co., Schenectady, N. Y. 107-17

IS YOUR CITY "GOING PLACES"?

Plan now to include "Going Places," General Electric's new 16-mm, 17-minute, documentary film, in your program aimed at relieving traffic congestion in your community. To arrange a showing, or to obtain prints for your own use, contact your G-E Apparatus Sales office.

You can put your confidence in—

GENERAL ELECTRIC

oughs. The only similar facility is at the Willets Point subway station in Corona, also in Queens Borough, where 3,000 cars are parked daily at 25 cents per car on city-owned property, part of the old World's Fair site, operated by the Park Department. This facility is in line with the city's policy of encouraging the parking of cars at or near transit stations.

The new Flushing facility, on the other hand, will aim to serve the shopper first, with any extra spaces accorded to the long-time and all-day parkers. It is a 6-acre area that cost the city nearly $900,000 by slum-area condemnation in 1950. The 776 Magee-Hale Park-O-Meters are erected two meters per post, as illustrated. They are multiple-coin meters using 25, 10, and 5 cents, to suit the rates of 1½ hours for 5 cents, 3 hours for 10 cents, 8 hours for 25 cents, 9 hours for 30 cents, and 12 hours for 40 cents. The lot is lighted by General Electric mercury-vapor luminaires.

This lot was designed and constructed by the Department of Public Works and is operated by the Department of Traffic, whose attendants are meter-maintenance men. Collections are made by the City Comptroller's office and consist of picking up the sealed lock-boxes and inserting empty sealed coin-boxes. The next similar facility in this program will be off-street space under the elevated structure at Sunnyside, Queens.

Portable Traffic Signals

THE CITY OF DALLAS, TEXAS, has 10 portable traffic signals, which were acquired in October 1951. The original purpose for which these signals were purchased was to provide part-time signal control at dangerous school crossings. But we have also been using portable traffic signals successfully as follows:

1. To control traffic at congested points in the vicinity of the State Fair grounds before and after football games, and other special events.

2. At regular signalized locations where the permanent signal is out of service temporarily.

3. At a large industrial plant where the employees' parking lot is across the street from the plant. In this instance, the guards at the plant have assumed full responsibility for the operation and maintenance of the signal.

4. At some intersections of residential streets along a detour when a major thoroughfare is closed for construction.

We have increased the mobility of our signals with some especially built two-wheel trailers. A single person can attach a signal to one of these trailers and tow it about the city behind a three-wheel motorcycle or truck.

LLOYD M. BRAFF
Traffic Manager *
Los Angeles, Calif.

* At the time this article was written, Mr. Braff was Traffic Engineer of Dallas, Texas.

Pigeon Hole Parking

IN THE LAST THREE YEARS, 17 Pigeon Hole Parking garages have sprung up, six are now being built, and many are in the plan stage.

Costs for these fabricated steel, open-deck structures are estimated at $1,000 to $1,100 per car space for the basic unit. Any plot with a frontage of 25 feet, or more, and a depth of over 60 feet may be utilized for construction of such units which have been built three to seven levels above ground.

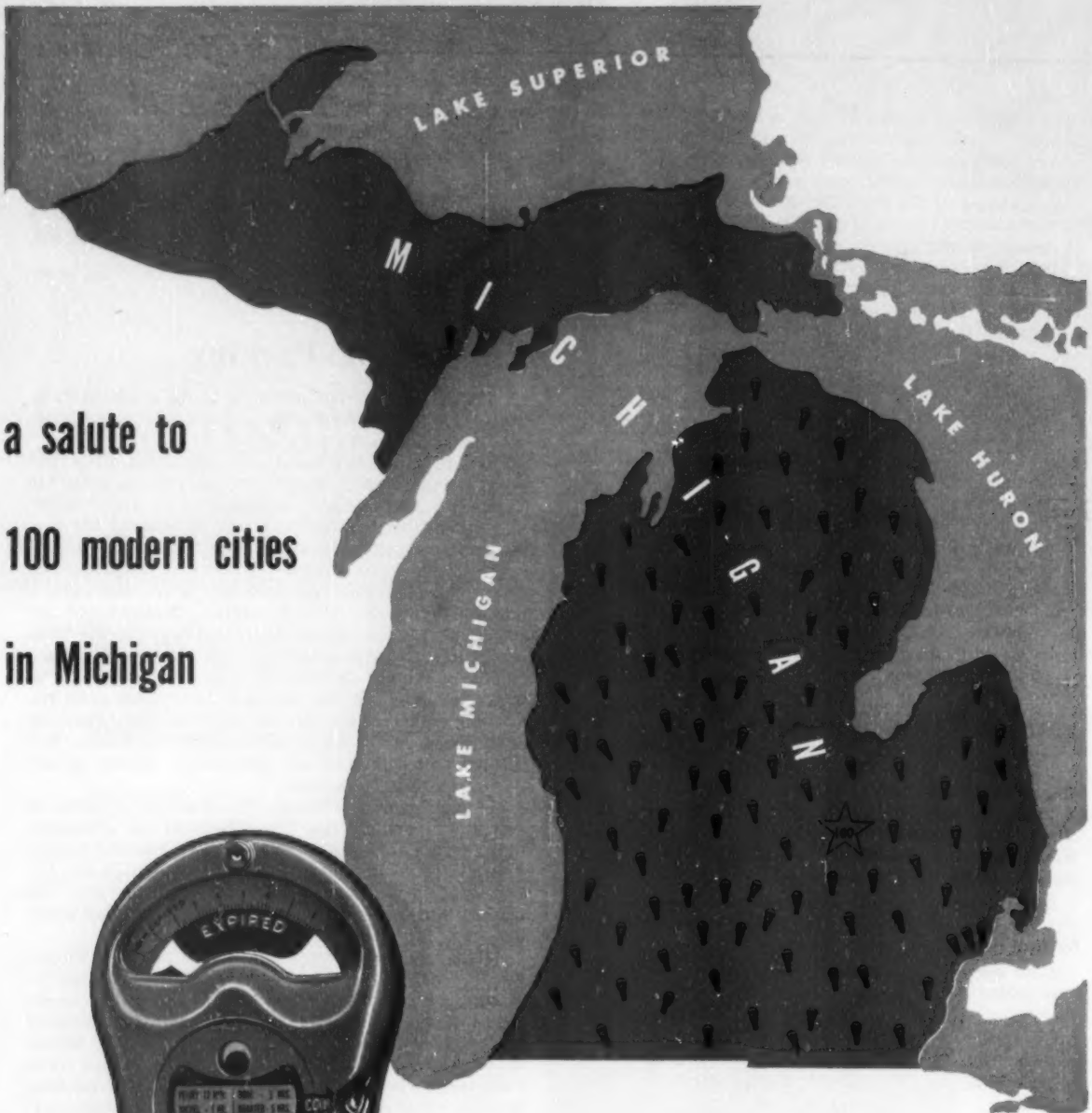
Mechanical devices are reduced to the simplest: a portable hydraulic hoist (operating horizontally) per 100 cars; a lift platform that rises vertically as the hoist moves laterally, and a dolly on this platform that runs out under the car and returns it to the platform or deposits it in the selected pigeon hole. (There is no human occupancy of the structure and the hoist operator is stationed on the platform at his control levers. The receiving or relinquishing operation is usually accomplished in 20 to 60 seconds.)

Many municipal attempts to solve the problem of downtown parking have failed because the economics didn't work out on single-purpose, permanent-type garages requiring high initial and high operating costs. Pigeon Hole garages can be large or small, with the trend to smaller sites. Large garages attract more traffic into congested areas.

Getting cars off the street is not the problem, getting them back is. High turnover must be encouraged by providing a reasonable parking charge for a reasonable time interval—two to three hours. This can effectively be controlled by accelerating the rate after the second or third hour. *The all-day parker must be turned away from the business core of a city, but present parking rates are based on a formula which encourages his staying.*

HAROLD P. HALLOCK
Garage Realty Company
New York 36, N. Y.

Employees at the Proctor & Gamble plant in Dallas, Texas, cross safely to the company parking lot by means of a signal made by Portable Traffic Signals, Inc., of Los Angeles, Calif. In the photo at the right is a close up of the portable signal.



a salute to 100 modern cities in Michigan

The star on the map designates Linden . . . the 100th city in Michigan to install Park-O-Meters. At the request of a group of forward-looking merchants the City Council ordered installation of 89 Park-O-Meters as the solution for the *traffic-parking problem* in the business district.

We extend congratulations to these merchants, the gentlemen of the City Council, President Adoph Lind, Marshal Stanley Eaton and to each of the 1100 residents of this progressive community whose safety, convenience and best interests are now being well served.

Magee-Hale PARK-O-METER COMPANY
COMMERCE EXCHANGE BUILDING • OKLAHOMA CITY, OKLAHOMA

Amarillo uses an open truck to collect brush chippings. At the right, the same truck is supplied with an A-frame to handle stump removal.

TREE-LIMB DISPOSAL That Everybody Likes

By MARK T. MILES
Superintendent of Parks and Recreation
Amarillo, Texas

IN THE FALL of 1953, Amarillo found itself threatened with a substantial expense item arising from its brush-handling program. The city maintains a professional forester and crew to trim street trees and relieve hazardous situations caused by low-hanging branches.

The vast majority of street trees in Amarillo are Chinese elms. The branches of these trees require frequent lifting since they have a tendency to droop low enough to impede passage of pedestrians and motor vehicles, as well as to block visibility of traffic-control signals. We find it necessary to work the entire city at least once every two years to clear these obstructing branches.

The fact that the trees are planted and maintained by adjacent property owners creates a problem in public relations, despite the fact that the city performs the work without charge. In order to minimize property owners' annoyance with branch cuttings, we have been following the practice of cleaning up the brush immediately after trimming work has been completed. We have found that most of the public's objection to the tree-trimming work arises when the property owner is able to see the amount of wood removed. Ordinarily, this removal policy would require two men to make three or four 16-mile round trips to the city dump. Not only is this amount of trucking expensive, it also greatly reduces the amount of manpower available for the trimming operation itself.

This expense prompted us to explore the experiences of other cities and private companies who are using the Asplundh brush chipper. We learned that the chipper was giving satisfactory service everywhere with the possible exception of those locations having a lot of dead branches, particularly from hardwood trees. We had no need to concern ourselves with this exception.

Chipper-Mounting Details

Consequently, we obtained a trailer-type brush chipper, mounting it on a 1951 International 2-ton, cab-over-engine truck that we had been using in our forestry program. A 7½-ton winch was mounted on the truck to facilitate stump removal and perform other incidental duties. The winch was rigged to create a hoist dump bed on the truck for dumping brush chips.

The 5-foot-high removable stake-body sides on the truck were lined with weatherproof, removable plywood to hold the chips. An important factor in getting the machine started on a satisfactory basis was the fact that the Asplundh Company provided a factory representative in Amarillo to assist the operators in the initial setting up and in the establishment of a procedure for operating the machine.

Contrary to our experience with many other machines of this nature, the city was able to enjoy trouble-free operation from the start. The problem of brush disposal, which had formerly involved many man-hours, was now completely eliminated. The forestry truck now operates for three or four days without having to dump the chips. Moreover, we now use the chips to mulch rose and shrub beds, storing them beside the Park and Recreation Department warehouse

short cut to bigger profits...

OLIVER DIESEL AND STRAIT-LINE LOADER!

With this bulldozer attachment the Strait-Line becomes even more profitable. Rear-carried bucket adds traction that makes heavy dozing easy. Blade does not interfere with loader operation. Other attachments include lifting boom, fork, and a variety of buckets from ¾- to 2-yd. capacity.

Diesel economy and short-cycle loading—that's how the Oliver diesel tractor and Strait-Line loader short-cut to more profit on any loading job. Compare this unit with other loaders...it digs in *front* or *rear* and loads in front...always working in a straight line. The rear-carried bucket increases traction, makes steering easier and permits bigger loads.

Now add the ruggedness and economy of either the Oliver "77" or "88" diesel tractor. Here is a 6-cylinder diesel you can count on for quick starts and down-right lugging ability to do more work at less cost. Get acquainted with this unit by driving it yourself. Check its features and you'll see why you get more yardage at a lower cost with an Oliver diesel and Strait-Line loader. See your Oliver Industrial Distributor.

THE OLIVER CORPORATION

400 West Madison Street, Chicago 6, Illinois

a complete line of industrial wheel and crawler tractors

for future use. This procedure eliminates the need for trips to the city waste-disposal site.

When the machine was first purchased, some doubted the practicability of the trailer mounting. However, after consulting several organizations who were using it in this way, we proceeded to mount it. The trailer attachment has proved completely satisfactory in that any time the forestry truck has had to be used for other purposes, the chipper unit could be detached easily.

We were told that a cover of some sort should be provided for the truck receiving the chips. Since the truck being used was a multipurpose unit, we did not particularly desire to limit its usefulness by providing a top. After a little operational experience, we found that the cover was not necessary. By mounting a deflector on the chipper-discharge chute, our crew was able to load the rear half of the truck bed without losing enough chips to create any problem.

The city feels that this machine is capable of performing the work for which it was designed and that it can be operated with a minimum maintenance expenditure. To date, we have not acquired enough operating data to permit the quotation of accurate cost figures. However, our savings, in a single year of operation, will far exceed the costs.

Maryland Conference on Community Development Organized

PLANS FOR a permanent organization, to be known as the Maryland Conference on Community Development, were adopted at a state-wide conference of civic leaders and planners, held on May 1 at the Baltimore Museum of Art.

At the opening session the principal speaker, introduced by Governor Theodore R. McKeldin, Jr., was Dr. Abel Wolman, Professor of Sanitary Engineering, Johns Hopkins University. The conference then divided into two "workshops" on community planning. Five "information booths" were conducted during the luncheon recess; and again in the afternoon there were two simultaneous workshop sessions.

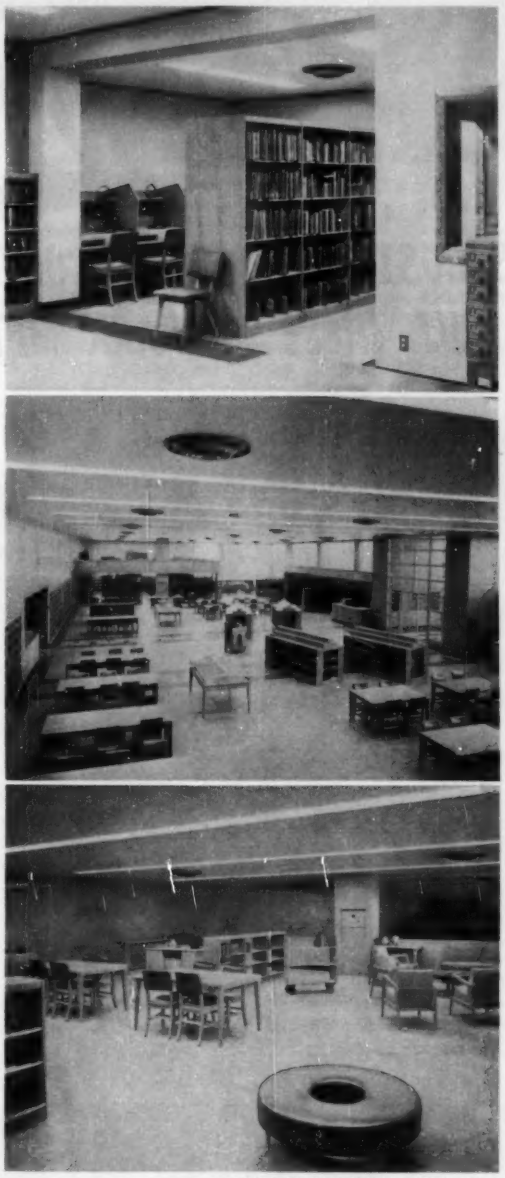
The closing general session was presided over by Harold Taubin, Planning Engineer, Upper Montgomery Planning Commission. Requests for further information may be addressed to Mr. Taubin as Chairman, Maryland Conference on Community Development, Box 276, College Park.

Topeka's New Public Library

By HORACE S. MOSES, *Librarian, Topeka, Kans.*

THE NEW PUBLIC LIBRARY in Topeka, which became a reality late in 1953, incorporated numerous features designed to enhance its attractiveness as a useful, comfortable, and beautiful cultural center. The one-story buff-stone structure with basement is arranged to make wise use of space without crowding. Comfortable reading areas are provided in corners where there's an abundance of outside light.

The library has a Fine Arts Division, equipped to serve artists of all ages. In addition to two listening rooms, there are four smaller booths where patrons may listen to recordings. Adjoining the Fine Arts Division and separated from it by an accordion curtain is the rose-colored gallery, furnished with cases for museum pieces, and 30 armchairs. The Gallery is equipped for showing motion pictures, and at other times, patrons gather in the room to relax or listen to soft music.



PHOTOS BY TOPEKA DAILY CAPITAL

(Top) There are individual listening booths and small private listening rooms for music lovers who visit the Fine Arts Division. (Center) Main reading room of the Topeka Public Library. (Bottom) This balcony area of the Topeka Library provides both comfort and privacy.

The Library's Children's Department has gay, pale yellow walls with tile floor of pale yellow and green. Tables are three different heights, and two sizes of chairs are provided for the young readers. The book shelves are low, and most books for a given age group are within reach of the children. The Chilren's Department is not completely separated from the adult reading room, making possible for parents to glance at the children occasionally while they are seeking information or books in the room.

Study Areas

Two balconies provide slightly isolated areas for study, and one of these is equipped with vocational guidance literature and books of interest to serious-minded teen-agers.

The library was financed by a $650,000 issue of 10-year serial bonds bearing 1½% interest.

DOWN

COMES THE COST OF PARKING CONTROL — WHEN YOU PUT THESE KARPARK METERS ON THE JOB!

Here are four sound reasons why these two great parking meters will lower your city's traffic and parking control costs substantially.

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2. LOW-COST MAINTENANCE AND REPAIRS —made for accurate timing and rugged durability by the craftsmen who make famous Herschede clocks. Operate efficiently under all weather conditions with minimum service.

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Boy Scouts "Take Over" Town Government

Plaquemine, La., believes in a practical approach toward civic education, reports Mayor Charles P. Schnebelen. Every year the municipal government is turned over to the town's Boy Scouts for one day, so that they can actually learn about local government's operations at first hand. Also proposed in Plaquemine is a plan for sending one class of senior students from the high school to attend the monthly meeting of the Mayor and Council. The photo shows Mayor Schnebelen turning the key to the Town of Plaquemine over to Scout Norman Davidson (Scout Mayor). From this moment the boys ran the affairs of the town for a day. The other scouts in the photo are members of the City Council.

Puerto Rico's Junior Firefighters

A SUCCESSFUL EXPERIMENT in fire prevention and safety measures, launched last summer by the Commonwealth of Puerto Rico's Fire Chief, Raul Gandara, has resulted in a well-organized and active "junior grade" auxiliary fire department. Some 600 youngsters are enrolled in San Juan alone, and units have been created in Ponce, Mayaguez, and other cities. So successful has the program been that the National Fire Prevention Association awarded special recognition to Puerto Rico for its outstanding fire-prevention activities.

Puerto Rico's little firemen (Bomberitos) range from eight to twelve years in age, wear red shirts, blue dungarees, sneakers, and the time-honored fire-fighter's hat. But each youngster must earn them the hard way. They are acceptable as junior fire fighters only if they maintain their school marks, do their homework, are truthful and courteous, and obey their parents.

They are encouraged to visit firehouses, examine and learn how to handle equipment, and put out fires —as well as slide down the fire pole.

The "Bomberitos" are organized into brigades, each with an adult fireman as "chief." Lessons are learned by using miniature equipment — and they fight fires in tests under strictest supervision and surveillance.

A brigade of "Bomberitos" in full uniform, line up for inspection in front of a new Puerto Rico firehouse in Hato Rey.

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Moves traffic efficiently and safely at intersections

The G-E Type V semi-vehicle-actuated controller permits maximum flow on the main roadway (foreground), while traffic on the minor street (background) can cross through the intersection. Minimum delay is provided by the Type V controller because of its ability to count vehicles approaching the intersection. This exclusive feature, known as the traffic variable initial interval (rather than fixed), provides "green time" in accordance with the exact requirements of the vehicles detected. This gives minimum delay to main or arterial traffic. T-intersections such as entrances to hospitals, plants, and clubs are suggested applications.

SERVICING is easy with the same type of construction and maintenance features found in the famous Type F controller. The simplified electronic timing units and exclusive "service-minded" design features such as jack-mounted components make the efficient Type V popular with service crews.

MORE INFORMATION is available from your nearest G-E Apparatus Sales Office or Traffic Control Distributor. G.E. also manufactures the Type V controller in a fully vehicle-actuated density model. For further details, write for Bulletin GEC-941, Section 453-61, General Electric Company, Schenectady 5, N. Y.

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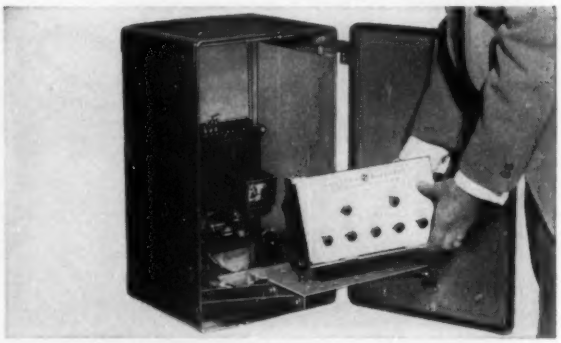
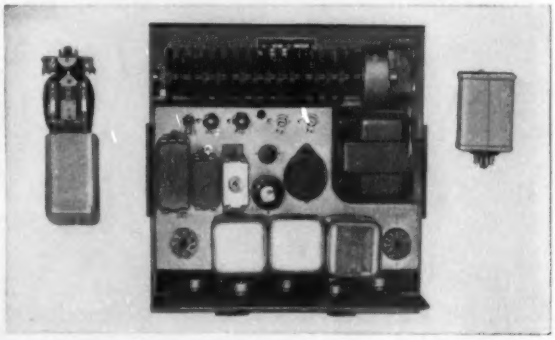


TIMER IS EASILY REMOVED for shop servicing, and it swings out on pantograph arms for field inspection or maintenance.



JACK-MOUNTED RELAYS and unitized construction save service time and cost. All components are easy to see and replace.

Slums Serve as Labs For Civil Defense, Fire Fighting

SLUM DEMOLITION AREAS of two cities have been put to good use as practice grounds for civil defense crews and fire fighters.

According to the National Association of Housing and Redevelopment Officials, slums slated to be razed to make way for new housing served those useful purposes in Detroit, Mich., and in Memphis, Tenn. Both cities plan to hold further public safety training in those areas.

The Detroit Housing Commission's Gratiot redevelopment project area was the scene of training sessions for about 70 employees of the forestry and landscape division of the department of parks and recreation, who form part of the nucleus for the city's volunteer civil defense organization.

Mock Rescue Work

They lifted fallen timbers and rocks off fellow-workers who posed as casualties. They hoisted ladders to carry others down to imaginary waiting ambulances, and did other mock rescue work. The volunteers have scheduled another practice for spring. They have planned then to burn a slum house to gain skill in fire-fighting techniques.

Slums marked for demolition served as a laboratory for a national fire instructors' conference held in Memphis. Before setting the slum houses ablaze, participants placed gauges and other devices inside to measure the speed with which a house burns, the intensity of heat, and other factors that would provide useful information to pass on in fire-fighting classes.

The Memphis fire department now plans to use an old structure still standing on the site of a new low-rent housing project in drills of its crews, officials of the Memphis Housing Authority have told the association.

A Plea For Adequate County Jails

IN THE MAY ISSUE of *Five Star Detective* appears an article by Leslie G. Kennon, entitled "It's Time We Helped the Sheriff." Mr. Kennon, a Kansas City newsman, after studying results of a survey of 450 counties, reveals that sheriffs' forces throughout the nation are pitifully undermanned and underbudgeted, that county jails are in as bad shape as they were 50 years ago, and that very little is being done to correct this hazardous situation.

Over half of the nation's county jails were built prior to 1920 and most of them have had no improvements since they were built. The lack of separate facilities for delinquents is especially serious, as it makes of these outmoded jails schoolrooms for learning from hardened criminals expert ways of blowing a safe, knocking off a bank, or mugging a pedestrian. Four per cent of the jails surveyed even lacked separate facilities for their men and women prisoners.

Nearly 90 per cent of the sheriffs considered their budgets inadequate to enable them to carry out their duties as they should be performed. County jails in general are described as fire traps, without plumbing, without facilities for segregation, overcrowded, ready to fall apart, poorly located, etc.

Many sheriffs seek cooperation with civic groups, religious organizations, and women's clubs as a way to get their ideas to the public, and they urge public inspection at any time.

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TRUCK MOUNTED FLUSHERS
STREAMLINED FOR CIVIC PRIDE

T. F. TRACTOR FLUSHER CAN BE USED FOR FIGHTING FIRES AS WELL AS STREET CLEANING!

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★ HI-TENSION STEEL THROUGHOUT
STANDARD STEEL FLUSHERS are built of Hi-Tensile Steel—4 to 6 times less corrosive than blue annealed steel. Saves 15 to 20% dead weight.

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This is how Reinforced Concrete Pressure Pipe works for you in the FUTURE...

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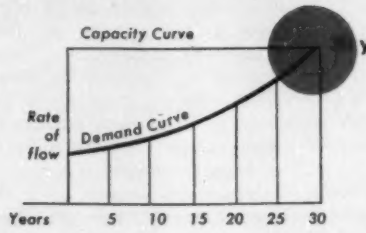
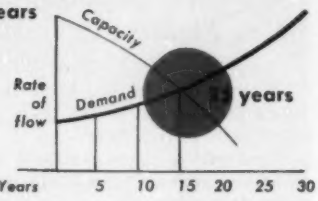


Certain other classes of pipe



TREMENDOUS GROWTH AND POPULATION GAINS have made many community planners and water works engineers realize that in order to satisfy future needs, their main water supply lines *must* have a high sustained hydraulic capacity.

An interesting example of foresight and long range planning is the program for enlarging the water system of the City of Burbank, California. Fully realizing that the post war years would bring unprecedented population gains to their area, the City Manager, the Planning Commission and the Engineers in the Public Service Department of the City of Burbank planned and installed additional permanent water mains in anticipation of future demands. These installations involved considerable footage of American Concrete Cylinder Pipe in sizes 16" through 36". The City of Burbank's water system totals approximately 230 miles and has reached multi-million dollar proportions.

SUSTAINED HYDRAULIC CAPACITY. The use of reinforced concrete pressure pipe manufactured by this Company assures to the City of Burbank and will also assure to your community superior design, permanence and sustained hydraulic capacity, the basic requirements of long range planning.

LET OUR EXPERIENCE HELP YOU. Our more than forty years of experience and research in the design and development of reinforced concrete pressure pipe are available in helping your community plan its water transmission project wisely for the next 50 years, or even more. You can depend upon rugged reinforced concrete pressure pipe to give years of economical service with the assurance of sustained hydraulic capacity for its exceptionally long life.

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From War Housing Tenancy

(*Continued from page* 131)

ernment made payments in lieu of taxes equivalent to full realty taxes, as if it were private property, and provided maintenance, repair, and management services.

The housing shortage in Sidney continued well after the end of World War II, despite expansion of facilities by local private builders. As late as March 1951, according to the local newspaper, the *Sidney Record-Enterpriser*, more than 2,500 Bendix-Scintilla workers were unable to find housing in Sidney.

Meanwhile, the defense housing projects of temporary construction had outlived their expected life-span and were rapidly deteriorating while continuing to be occupied because of the housing shortage. It was not until last December, after the newly accelerated PHA disposition program was well under way, that contracts could be awarded for demolition of the temporary buildings.

Public Offering to Existing Tenants

Then, on March 4, 1954, the PHA made a public offering to tenant occupants and veterans of the remaining 200 dwelling units of permanent construction. The project was offered for sale in two sections. One, consisting of single-, 2-, and 4-family houses in 43 buildings with accommodations for 96 families, was offered first to existing tenants for individual purchase. The other section of the project, not capable of subdivision and consisting of five courts in garden-apartment style and six 6-family houses, all of one and two stories in height, and with total accommodations for 104 families in 26 buildings, was offered to "any qualified group of veterans whether now existing or organized expressly to take advantage of this offer on a mutual or cooperative basis for the purpose of providing housing to its members or stockholders."

The prices for the buildings and lots, established at current fair market value by private and PHA appraisers, ranged from $4,200 for single detached homes, up to $6,500 for doubles, and up to $11,700 for four-family houses. The sales price for ownership in the proposed mutual ranged from $2,300 to $3,575 per unit, depending upon the size of the apartment.

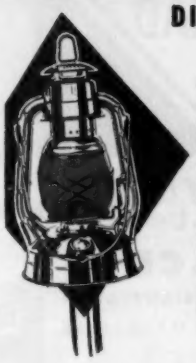
Individual purchasers were given 30 days to make their offers and good-faith deposits of $50 per dwelling unit, and the mutual or cooperative organization of tenants and veterans a 90-day period for creation and financing. Deposits of 10% of the purchase price in all cases was required, the balance to be financed by 25-year mortgages at 5% with the assistance of local banks and the federal government.

Techniques for carrying through this sale of about $567,000 in diverse parcels of residential property had been carefully worked out by the New York Field Office. When two PHA realty officers arrived in Sidney on the day of the offering, advertisements were published and full news accounts were carried in the local press, and each tenant had been provided with a detailed description of the sales offer. The government men embarked upon an intensive period of meetings with tenants and other prospective purchasers, town officials, and other interested parties. Not only the tenants, but local business and professional men, bankers, insurance and home-supply dealers quickly saw the advantages to be gained from transformation of the project to home ownership. The Sidney Chamber of Commerce formed a committee of leading citizens to volunteer free counsel and assistance o project tenants.

Within a week, matters were proceeding well enough to allow one of the PHA realty officers to proceed to another job, leaving the other to conclude the Sidney transaction himself. By mid-April every building offered for individual purchase was sold, and the required more than 50% of prospective mutual stockholders had organized to buy the remaining buildings and set up a cooperative.

The large change-over from federal to private ownership of residential properties is bound to result in much broader benefits than are ordinarily expected from conventional realty transfers, it is felt by federal officials. The aura of emergency status will be dispelled and succeeded by stability; war-time expansion and population increase will be transmuted into permanent local assets; and home ownership will foster basic American social and economic institutions. Finally, the fiscal problems of many local governments will be facilitated by transition of the properties from tax-immune to taxable status. For even though municipal income from payments-in-lieu-of-taxes was equivalent to normal taxes, the base for calculation of constitutional debt was delimited.

DIETZ
SIGNALS of SAFETY



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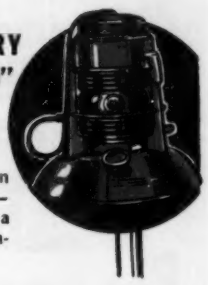

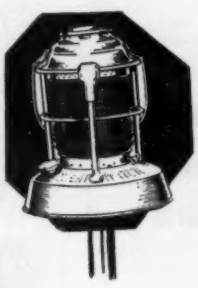

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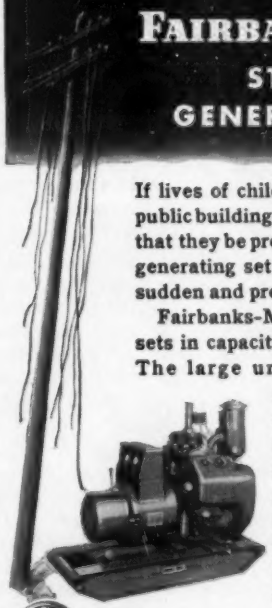

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Zoning and Planning Notes

Edited by NORMAN WILLIAMS, Jr.

Light Manufacturing in Commercial District — Asphalt Plant

CONNECTICUT. *Mitchell Land Co.* v. *Planning & Zoning Board of Appeals of Greenwich*, 102 Atlantic (2d) 316 (Supreme Court, December 29, 1953.)

Application was made for a special exception to establish an asphalt plant in a general business district on the waterfront in Greenwich. When it was turned down, a revised plan was submitted, to provide more room for parking trucks off the street and to minimize dust and dirt; and this plan was approved, subject to various conditions. The courts upheld the exception granted.

The Connecticut Court began by describing special exceptions as "a new technique which is developing in the field of zoning"; apparently there was no specific reference to such a procedure in the Connecticut enabling act until 7 years ago. A distinction was then drawn between special exceptions and variances, with more clarity than is usual in opinions on the subject; and it was held that the local officials could reconsider the application when the plan was changed to meet the objections filed. The special exception procedure required that uses permitted thereunder must be "light industry," but the Court did not make a direct decision on the issue of whether an asphalt plant was light industry.

Criteria for Rezoning Agricultural District to Permit Filling Station

MARYLAND. *American Oil Co.* v. *Miller*, 102 Alantic (2d) 727 (Court of Appeals, February 10, 1954).

A small triangular plot of land at a minor intersection in the Baltimore-Annapolis highway in Anne Arundel County was located in an agricultural district under the county zoning ordinance. When application was made (for the second time) to rezone the area to permit a filling station, the local Zoning Commissioner filed a report disapproving the application on the ground that a substantial amount of property zoned "commercial" along the highway was still vacant, so that no additional commercial frontage was needed, and that commercial zoning had been established at a more important intersection nearby. The Planning and Zoning Commission agreed. The County Commissioners approved the requested change, on the ground that completion of the Chesapeake Bay Bridge nearby would substantially increase traffic over the highway, that the inadequate amount of commercial frontage on the highway resulted in unreasonably high land costs, and that the topography made this lot unsuitable for residences. Testimony at the trial indicated that, in the first year after the opening of the bridge, the increase in traffic was about 17%.

The Court held that rezoning to accommodate another filling station was improper. In the opinion, the Court began by restating the traditional rule that local zoning determinations would be upheld as long as the grounds stated were at least debatable—and then held that the grounds stated in this case against the proposed rezoning were not even debatable. The Court also underlined the special considerations applying in changing existing zoning:

> The original zoning is presumed to be well planned and designed to be permanent. In order for the rezoning to be valid, it must appear that either there was a mistake in the original zoning, or that the character of the neighborhood has changed to such an extent as to justify the amendatory action.

First, the Court held that a 17% traffic increase resulting from opening of the bridge did not provide any real ground for increased commercial zoning. Second, since 6,900 of the 9,000 feet of commercially-zoned frontage remained vacant, the Court could not see that there was any shortage of commercial frontage. Finally, it was held that residences could be built on the land, although perhaps at increased cost.

This case involves a difficult but important point in zoning technique in areas beginning to undergo intensive "development"—whether it is possible or desirable to indicate in advance the areas for future non-residential development.

Delegation of Power Without Standards

COLORADO. *General Outdoor Advertising Co.* v. *Goodman*, 262 Pacific (2d) 261 (Supreme Court, October 13, 1953).

NEW JERSEY. *Borough of Oakland* v. *Roth*, 100 Atlantic (2d) 698 (Appellate Division, Nov. 12, 1953).

A county zoning ordinance in Colorado permitted signs in commercial districts when approved by the County Board of Adjustment and the County Board. The Court, not surprisingly, held that this was a perfect example of unlawful delegation of power, without any standards whatsoever to guide the Board's action:

> "On the face of the amended resolution it instantly appears that the county commissioners and the board of adjustment, without any set of standards or limitations, are permitted to act according to their particular liking for any reason or no reason at all. It would be difficult to find a more direct grant of arbitrary discretion and unlimited power than is here vested."

When the County tried to argue that the standards were implied in various ways, the Court merely remarked that ". . . counsel must have been reading some other amendment than the one before us."

In the *Oakland* opinion, the Court confirmed the opinion below (reported in THE AMERICAN CITY for November, 1953) holding unconstitutional a provision authorizing municipal action to invalidate conveyances not approved under the Subdivision Control Act, because of the exemption of subdivisions where the local planning board could waive the requirement of approval, without any standards whatsoever. The statute has since been amended to take care of this problem.

No Compulsory Termination Of Junk Yard In Residential District

OHIO. *City of Akron* v. *Chapman*, 116 North Eastern (2d) 697 (Supreme Court, December 23, 1953).

Since 1922 the Akron zoning ordinance contained a clause providing that "A nonconforming use shall be discontinued and removed when in the opinion of the council, such use has been permitted to exist or continue for a reasonable time." In 1950, the Council passed an ordinance requiring the termination, as of January 1, 1951, of a specified nonconforming junk yard located in a residence district.

The Court held that the regulation was invalid, on the familiar ground that an existing nonconforming use has a vested right to remain. In a special concurring opinion, one judge argued that the second ordinance directed solely at a single individual, constituted an unreasonable discrimination and was so invalid for that reason.

While, as indicated immediately above, the procedure adopted here made the regulation particularly vulnerable, this opinion represents a flat repudiation of the principle of requiring non-conforming uses to amortize themselves out of residence districts in Ohio. Important decisions on this point have been occurring rapidly in recent years, and all that can be said now is that the law is in a state of flux on the problem.

Miscellaneous Minor Cases

MICHIGAN. *Hanson* v. *Huetter*, 62 North Western (2d) 663 (Supreme Court, February 18, 1954.) A proposed addition to a commercial building was held not to violate a zoning requirement on minimum floor area and cubage, since this was not a "principal building," to which such requirements applied. No consideration was given to the constitutional objections to such requirements, particularly under previous Michigan law.

NEW JERSEY. *Herman* v. *Board of Adjustment of Parsippany-Troy Hills Township*. 102 Atlantic (2d) 73 (Superior Court, December 29, 1953). A rather transparent legal device, apparently designed to get around minimum frontage requirements by concealing common control of adjacent narrow lots, was here defeated. This case involved the same fact situation as in *Rodee* v. *Lee*, 14 New Jersey Superior 188, 81 Atlantic (2d) 517 (1951), discussed in THE AMERICAN CITY for November, 1951, page 131.

NEW YORK. *Von der Heide* v. *Zoning Board of Appeals of Town of Somers*, 126 New York Supplement (2d) 852 (Appellate Division, December 30, 1953).

An amendment to the zoning ordinance, passed during the litigation and stating that a motel should not be considered as an inn, was to control the decision in this case. See discussion of the lower court opinion in THE AMERICAN CITY for January, 1954, page 153.

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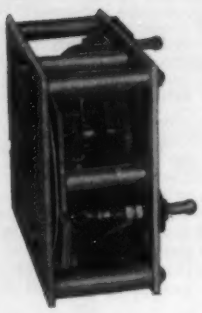

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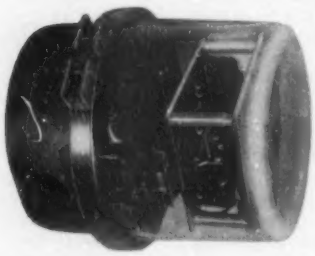

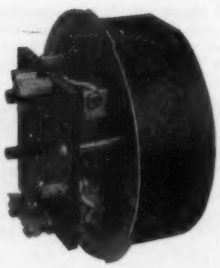

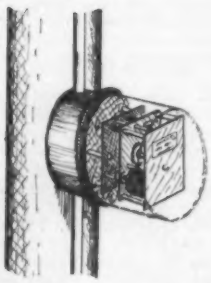

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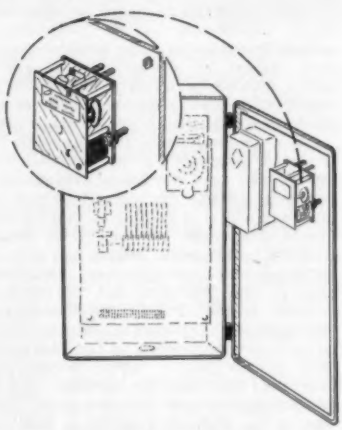

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DANVILLE, ILLINOIS

Legal Notes and Decisions

Prepared by NATIONAL INSTITUTE OF MUNICIPAL LAW OFFICERS
Charles S. Rhyne, General Counsel

Annexation—City May Annex Area In Unincorporated Township

In quo warranto proceeding to determine validity of territory annexation by city, held that incorporated city of 10,000 inhabitants or less could validly annex abutting unplatted property, even though such property was within unincorporated township which could qualify for limited village powers conferred by statute. *State ex rel. Nelson* v. *City of Anoka*, 61 N. W. (2d) 237 (Minn., Nov. 27, 1953).

City Property—Unused Land Condemned for Buildings—City May Sell

In action by state, challenging authority of city to sell unused land acquired by condemnation proceedings for purpose of erecting city buildings thereon, held that unused land had not been dedicated to public use and was not within principle forbidding city to alienate land held in governmental capacity. *Commonwealth* v. *City of Corbin*, 264 S. W. (2d) 263 (Ky., Jan. 29, 1954).

Contract for Expert Assessment Services Void

In action by City to cancel contract made through its mayor and council to pay corporation specified sum for expert service and advice concerning property values for city tax purposes, and to enjoin payment of city funds for such service and advice, held that express mandatory provisions of city charter for assessment of real and personal property for tax purposes by board of assessors subject to review by mayor and council of city negatived any authority of mayor and council to contract with another for performance of such official duties. *Graves* (*Mayor of Clarkesville*) v. *Wall*, 79 S. E. (2d) 529 (Ga., Jan. 11, 1954).

Election Codes—Act Giving Cities Choice of Three Codes Proper Delegation of Authority

Where question was propounded by Senate to Justices of Supreme Court relating to whether or not General Assembly had authority to enact legislation providing that municipalities could adopt one of three election codes specified by General Assembly, held that if codes were complete and in conformity with constitutional requirements, such enactment would not constitute unconstitutional delegation of power vested in General Assembly. *Opinion to the Senate*, 102 Atl. (2d) 118 (R. I., Jan. 22, 1954).

Firemen—Volunteer—Death from Fall While in Parade — Recovery Allowed

In action by widow against town for death of voluntary fireman fatally injured in fall from fire truck, on way to parade and bazaar of neighboring fire company in which deceased's department was to participate, held that recovery could be had under Section of General Municipal Law providing for payments for death of firemen while participating in parade. *Hutter* v. *Town of Brookhaven*, 127 N. Y. S. (2d) (N. Y. Suffolk Cty. Ct., Jan 11, 1954).

Fluoridation of City Water Supply Upheld

In action by citizen to prevent fluoridation of city water system, held that city ordinance is constitutional, consistent with general laws of state and city charter and that resolutions of the city board of control and contracts made by Director of Public Utilities and proposal to facilitate the fluoridation program are within city's lawful power. *Kraus* v. *City of Cleveland*, 116 N. E. (2d) 779 (Ohio Common Pleas, Oct. 23, 1953).

Garbage—Exclusive Contract for Collections Upheld

In action to enjoin city from enforcing ordinance granting exclusive contract and fixing charges for collection of garbage, held that ordinance was not invalid as taking property without due process of law, even though it might deprive plaintiff and other unlicensed garbage collectors of right to collect garbage. *Tayloe* v. *City of Wahpeton*, 52 N. W. (2d) 31 (N. D., Dec. 31, 1953).

Gross Receipts Tax on Contractors Doing Interstate and Intrastate Business Upheld

Where ordinance taxes gross receipts of contractors offering services from places within borough but expressly disclaims any power to thereby levy taxes unauthorized by federal and state constitutions, and borough sought to impose tax upon business firm in borough only upon those gross receipts derived from intrastate business, held that since such receipts were separable from firm's interstate receipts, omission of formula for apportionment did not invalidate ordinance as improper delegation of legislative authority to tax collector. *O. H. Martin Co.* v. *Borough of Sharpsburg*, 102 Atl. (2d) 125 (Penn., Jan. 11, 1954).

Sidewalk—Rise in Less Than One Inch High as "Slight Defect"—City Not Liable

In action by pedestrian for injuries sustained when she tripped over sidewalk section raised between one-half to three-fourths of an inch above next section, held that city was not liable on charge of negligence for slight defect in sidewalk condition since it is not an insurer of the safety of its streets, though charged with duty of keeping them reasonably safe and free from nuisance. *Kimball* v. *City of Cincinnati*, 116 N. E. (2d) 708 (Ohio, Dec. 23, 1953).

Street Assessments—Property Owners Entitled to Refund of Surplus

In action by property owners in city street improvement district for refund of surplus fund which remained after district had accomplished purpose, held that statute requiring such excess funds to be turned over to city treasurers for maintenance and repair of city streets is unconstitutional as applied to funds collected in form of tax assessments from property owners of street improvement district. *City of Searcy* v. *Headlee*, 262, S. W. (2d) 288 (Ark., Nov. 30, 1953).

Street Lighting—Death by Contact With Fallen Wire—City Not Liable

In action against city for alleged wrongful death by electrocution upon contact with fallen street light wire, held that where death resulted from contact with fallen wire used only for transmitting electricity for street lighting, city was engaged in governmental function and evidence of negligence in maintenance did not create liability in city for wrongful death. *Baker* v. *City of Lumberton*, 79 S. E. (2d) 886 (N. C., Jan. 29, 1954).

Swimming Pool—Injuries to Diver — City Not Liable—Contributory Negligence

Where 20-year-old swimmer attempted to dive from edge of municipal pool under cable which was suspended two feet above surface of water and eight feet from pool's edge and struck his head on stone ledge which was under cable and 22 inches below surface of water, held no recovery against municipality for injuries received, since plaintiff was contributorily negligent. *Cooper* v. *City of New Braunfels*, 264 S. W. (2d) 448 (Tex. Civ. App., Jan. 27, 1954) *Reh. den.* Feb. 10, 1954.

Trailer Camps—$500 Annual Fee Upheld

In action against trailer camp operator for failure to have required license under code, held that $500 annual fee is not unreasonable and arbitrary on ground that amount of fee bore no reasonable relation to cost of regulating and supervising business of trailer camps in absence of proof to the contrary. *City of Chicago* v. *Schall*, 116 N. E. (2d) 872 (Ill., Jan. 20, 1954).

Volunteer Firemen — Workmen's Compensation—Minor Entitled to —Estoppel

In action by 17-year-old volunteer fireman to recover compensation for injuries, held that borough was estopped to deny liability because of its long standing practice in accepting minors into membership in volunteer fire company, notwithstanding prohibition of same in local law. *Vogt* v. *Borough of Belmar*, 101 A. (2d) 849 (N. J., Jan. 11, 1954).

Water—Power of Home-Rule City To Extend Services to Annexed Area —Competition

In action by water company to enjoin city from extending its water service into addition recently annexed to city, and to enjoin city from serving customers of plaintiff, held that statute stating in effect that if municipal corporation desires to serve itself and its citizens when they are already being served by public utility, it must purchase and take over the property and plant of such utility and pay fair value thereof within eighteen months, has no application to situation wherein municipality merely expands its territory and encroaches upon existing utility, and that statute, having relation to matter of state-wide concern being in nature of eminent domain statute, must prevail over conflicting city charter provisions. *City of Tucson* v. *Polar Water Co.*, 265 Pac. (2d) 773 (Ariz., Jan. 18, 1954).

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Recent City Manager Appointments

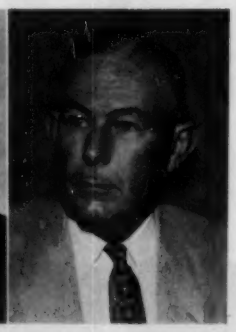
The following portraits are of city managers whose appointments have been announced in preceding issues of *The American City*

Frederick W. Brooks
Pampa, Texas

Fred H. Morgan
Paducah, Ky.

H. R. Bennett
Burbank, Calif.

Robert E. Layton
Portsmouth, Ohio



A. L. Atkinson
Greenwood, S. C.

Palm Beach, Fla., has appointed the former county engineer, JACOB M. BOYD, city manager, succeeding Trevette Lockwood (deceased).

KEITH R. CHINN, the former manager of West Palm Beach, Fla., has been reappointed city manager upon his return from military service, succeeding James J. Mott.

JOSEPH R. COUPAL, JR., left the managership of Ipswich, Mass., to succeed Julian H. Orr as city manager of Bangor, Maine.

Oxford, Maine, has appointed ERNEST S. CUBBERLY city manager, succeeding William A. Dunstan.

The first manager of Brawley, Calif., is W. O. CUTHBERTSON, formerly city manager of Bend, Ore.

GEORGE W. FARRELL, formerly director of public works at Columbia, Mo., was appointed city manager of Roseburg, Ore., succeeding W. A. Gilchrist.

Outremont, Que., has appointed ARMAND GAGNON, one-time manager of La Tuque, as city manager to succeed Eugene Roy.

Sulphur Springs, Texas, has appointed ROY E. HAMES city manager, to succeed L. A. PATTON.

SHELL HARTLEY was appointed city manager of Tifton, Ga., to succeed D. H. Hurst.

The first manager of Mifflinburg, Pa., is GUY L. KRAPP, formerly a civil engineer.

GAYLE T. MARTIN left the managership of Deerfield, Ill., to succeed Newell N. Jenkins as city manager of Maywood, Ill.

Gainesville, Ga., has appointed RILEY MILAM, former manager of Cartersville, city manager, succeeding Bert W. Fulford.

Mexico, Maine, has appointed LEO J. MORENCY, former manager of Madawaska, to succeed C. R. Woodman as city manager.

FRANCIS E. MUNSEY, formerly a department store manager, was appointed city manager of Vassalboro, Maine, to succeed Elbert M. Prince.

JOHN R. MCGINN, the former purchasing agent at Pueblo, Colo., was appointed city manager of Montrose, Colo., succeeding Douglas J. Flautt.

LaGrande, Ore., has appointed JESS M. PARKER, former manager of Sweet Home, to succeed E. H. Ford as city manager.

ELBERT M. PRINCE left the managership at Vassalboro, Maine, to succeed Joseph A. Hill as city manager of Skowhegan, Maine.

HAROLD W. PUTNAM, former manager of Thomaston, Maine, was appointed city manager of Ogunquit, Maine, succeeding Leigh Webber.

Pearisburg, Va., has appointed ERNEST L. QUISENBERRY, the former assistant city engineer at Johnson City, Tenn., to succeed F. E. Jennings as city manager.

GEORGE H. ROUNTHWAITE, formerly in public works administration in Hawaii, was appointed city manager of Las Vegas, Nev., succeeding Raymond V. Carey.

ARCHER SCRIBNER left the managership of Calais, Maine, to succeed Lloyd K. Allen as manager of Old Town, Maine.

Bridgewater, Maine, has appointed JEAN TAYLOR city manager, succeeding Oswalt T. Rozelle.

The first manager of Amherst, Mass., is ALLEN L. TORREY, former manager of Camden, Maine.

Cartersville, Ga., has appointed the former city clerk, ERNEST E. WATKINS, as city manager, succeeding Riley Milam.

LEIGH WEBBER, former manager of Ogunquit, Maine, has been appointed city manager of Oakland, Maine, succeeding Thomas M. Libby.

WALTER WHITNEY has been appointed city manager of Levant, Maine, succeeding Ellis A. Reeby.

Fort Lauderdale, Fla., has appointed DONALD P. WOLFER, one-time manager of Tucson, Ariz., as city manager to succeed H. M. Link.

CLARENCE E. RIDLEY
Executive Director
International City Managers' Association

REPRESENTATIVE MUNICIPAL BOND ISSUES

May 3 to May 13, 1954

Date of Sale			*Purpose*	*Average Maturity (Years)*	*Net Interest Cost Per Cent*
5- 3-54	Askov, Minn.	$ 63,000	Water Works Improvement	12⅝	3.255
5- 3-54	Highlands, N. J.	38,000	Beach Erosion	8⅔	3.44
5- 3-54	Sugarcreek, Ohio	13,000	Parking Facilities and Municipal	7⅓	3.15
5- 3-54	Lucas Co., Ohio	24,890	Road Improvement	3⅝	1.673
5- 4-54	El Segundo, Cal.	356,000	School Building	12½	2.785
5- 5-54	Yellow Medicine Co., Minn.	560,000	Drainage	10⅝	2.11
5- 6-54	New Bedford, Mass.	367,000	Highway Macadam 1954	2⅝	1.38
5-10-54	East Haven, Conn.	1,160,000	School, Issue of 1954	10¼	2.12
5-10-54	Canton, Ohio	29,972	Street Improvement	3	1.46
5-11-54	Salem, Mass.	100,000	Paving	3	1.18
5-11-54	Scotia, N. Y.	17,380	Street Improvement	5	2.19
5-11-54	Medina, Ohio	100,000	Sewerage System Improvement	10⅝	2.27
5-11-54	Brown Co., Wis.	300,000	Highway Garage	5½	1.46
5-12-54	DeWitt, N. Y.	41,000	Orvilton Sewer District	10¾	2.49

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The integral base is rugged (made from steel 50% heavier than the pole itself) . . . and because of its height and tapered design, is able to withstand the impacts of hardest service.

Elite Octa-Tubes have fewer parts . . . only 9 (compared with about two dozen in a conventional standard). And of course, all Millerbernd standards are fabricated of *extra-strength* steel!

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Booklet gives complete descriptions and engineering specifications.

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Conventions—When and Where

Conventions listed this month for the first time are indicated by an asterisk (*)

June 13-16—Chicago, Ill.
NATIONAL ASSOCIATION OF TAX ADMINISTRATORS. Annual Meeting (La Salle Hotel). Exec. Sec., Charles F. Conlon, 1313 E. 60th St., Chicago, Ill.

June 13-18—Chicago, Ill.
AMERICAN SOCIETY FOR TESTING MATERIALS. Annual Meeting (Hotels Sherman and Morrison). Exec. Sec., R. J. Painter, 1916 Race St., Philadelphia, Pa.

June 14-15—Syracuse, N. Y.
NEW YORK SEWAGE AND INDUSTRIAL WASTES ASSOCIATION. Spring Meeting (Hotel Syracuse). Exec. Sec., R. C. Sweeney, State Department of Health, White Plains, N. Y.

June 15-19—Boston, Mass.
THE AMERICAN INSTITUTE OF ARCHITECTS. Annual Convention (Hotel Statler). Convention Manager, Arthur B. Holmes, 1735 New York Ave. NW., Washington 6, D. C.

June 16-18—Estes Park, Colo.
COLORADO MUNICIPAL LEAGUE. Annual Meeting (Stanley Hotel). Exec. Dir., Jay Bell, 327 Norlin Library, Boulder, Colo.

June 16-18—Monticello, N. Y.
NEW YORK STATE CONFERENCE OF MAYORS AND OTHER MUNICIPAL OFFICIALS. Annual Meeting (Laurels Country Club). Exec. Sec., Morgan Strong, 6 Elk St., Albany, N. Y.

June 17-19—Missoula, Mont.
MONTANA MUNICIPAL LEAGUE. Annual meeting (Florence Hotel). Sec., C. H. Brewer, Box 51, Kalispell, Mont.

June 19-23—Bedford, Pa.
PENNSYLVANIA STATE ASSOCIATION OF TOWNSHIP COMMISSIONERS. Annual Meeting (Bedford Springs Hotel). Sec.-Treas., H. A. Fritschman, 2325 Darby Road, Havertown, Pa.

June 22—Boonton, N. J.
AMERICAN WATER WORKS ASSOCIATION—New Jersey Section. Summer Outing, Inspection Trip, and Luncheon. For information, address Sec., C. B. Tygert, Box 178, Newark 1, N. J.

June 23-25—Allentown, Pa.
AMERICAN WATER WORKS ASSOCIATION—Pennsylvania Section. Annual Meeting (Americus Hotel). Sec., L. S. Morgan, State Department of Health, Greensburg, Pa.

June 24-26—Biloxi, Miss.
MISSISSIPPI MUNICIPAL ASSOCIATION. Annual Meeting (Buena Vista Hotel). Mgr., George Lemon Sugg, P. O. Box 531, Jackson, Miss.

June 24-26—Richmond, Ind.
CENTRAL STATES SEWAGE WORKS ASSOCIATION. Annual Meeting (Leland Hotel). Exec. Sec., A. Paul Troemper, Sewage Treatment Plant, Richmond, Ind.

June 28-30—Boston, Mass.
AMERICAN SOCIETY OF LANDSCAPE ARCHITECTS. Annual Meeting (Hotel Somerset). Corres. Sec., Bradford Williams, 9 Park St., Boston 8, Mass.

June 28-30—Pittsburgh, Pa.
PENNSYLVANIA STATE ASSOCIATION OF BOROUGHS. Annual Meeting (William Penn Hotel). Sec., H. F. Alderfer, Room 281, The Capitol, Harrisburg, Pa.

July 21-24—New York, N. Y.
NATIONAL SECRETARIES ASSOCIATION. Annual Meeting (Waldorf-Astoria Hotel). Exec. Sec., Helen J. Boyle, 25 E. 12th St., Kansas City 6E, Mo.

July 25-31—Sao Paulo, Brazil
INTERAMERICAN ASSOCIATION OF SANITARY ENGINEERING. Interamerican Conference of Sanitary Engineering (Engineering Institute of Sao Paulo, Polytechnic School of the University of Sao Paulo). For information, address the General Secretariat, IV International Conference of Sanitary Engineering, Caixa Postal 8099, Sao Paulo, Brazil.

July 26-28—Philadelphia, Pa.
PENNSYLVANIA CHIEFS OF POLICE ASSOCIATION. Annual Meeting (Benjamin Franklin Hotel). Exec. Dir., Samuel Siegle, 420 State Theatre Bldg., Harrisburg, Pa.

July 27-29—New York, N. Y.
NEW YORK STATE ASSOCIATION OF CHIEFS OF POLICE. Annual Convention (Hotel New Yorker). Exec. Sec., R. W. Morris, P. O. Box 991, Syracuse 1, N. Y.

***Aug. 19-20—Fargo, N. D.**
MID-CONTINENT PARKS AND RECREATION CONVENTION. For information address C. P. Reed, Superintendent of Parks and Recreation, Fargo Park District, Box 1796, Fargo, N. D.

Aug. 25-27—State College, Pa.
PENNSYLVANIA SEWAGE AND INDUSTRIAL WASTES ASSOCIATION. Annual Meeting (Pennsylvania State College). State College, Pa. Sec.-Treas., Bernard S. Bush, Kirby Health Center, Wilkes-Barre, Pa.

Aug. 29-Sept. 2—Windsor, Ontario
CANADIAN FEDERATION OF MAYORS AND MUNICIPALITIES. Annual Meeting (Prince Edward Hotel). Exec. Dir., George S. Mooney, Office M-16, Mount Royal Hotel, Montreal, Quebec, Canada.

Aug. 30-Sept. 3—Atlantic City, N. J.
NATIONAL SHADE TREE CONFERENCE. Annual Meeting (Haddon Hall). Sec.-Treas., L. C. Chadwick, Department of Horticulture, Ohio State University, Columbus, Ohio.

Sept. 9-10—Montauk, L. I.
AMERICAN WATER WORKS ASSOCIATION—New York Section. Annual Fall Meeting (Montauk Manor). Sec.-Treas., Kimball Blanchard, 50 W. 50th St., New York 20, N. Y.

***Sept. 12-14—Williston, N. D.**
LEAGUE OF NORTH DAKOTA MUNICIPALITIES. Annual Meeting (Plainsman Hotel). Exec. Sec., Roberta C. Burr, 504½ Main Ave., Bismarck, N. D.

Sept. 12-15—San Francisco, Calif.
NATIONAL INSTITUTE OF MUNICIPAL LAW OFFICERS. Annual Meeting (St. Francis Hotel). General Counsel, Charles S. Rhyne, 726 Jackson Pl. NW., Washington 6, D. C.

***Sept. 13-15—Shawnee-on-Delaware, Pa.**
GOVERNMENTAL RESEARCH ASSOCIATION. Annual Meeting (Shawnee Inn). Sec., Elsie V. Haas, 684 Park Ave., New York 21, N. Y.

Sept. 13-16—Atlantic City, N. J.
ILLUMINATING ENGINEERING SOCIETY. Annual Meeting (Chalfonte-Haddon Hall). Exec. Sec., A. D. Hinckley, 1860 Broadway, New York 23, N. Y.

Sept. 15-17—Grand Island, Nebr.
LEAGUE OF NEBRASKA MUNICIPALITIES. Annual Convention (Hotel Yancy). Exec. Sec.-Treas., C. E. Beal, 303 Continental Bldg., Lincoln, Nebr.

Sept. 16-18—Salt Lake City, Utah
UTAH MUNICIPAL LEAGUE. Annual Convention (Newhouse Hotel). Exec. Dir., Tom McCoy, Newhouse Hotel, Salt Lake City, Utah.

***Sept. 19-22—Atlantic City, N. J.**
AMERICAN PUBLIC WORKS ASSOCIATION. Public Works Congress and Equipment Show. Exec. Sec., D. F. Herrick, 1313 E. 60th St., Chicago 37, Ill.

***Sept. 20-21—Kansas City, Kans.**
LEAGUE OF KANSAS MUNICIPALITIES. Annual Meeting (Town House Hotel). Exec. Dir., John G. Stutz, 512 Capitol Federal Bldg., Topeka, Kans.

***Sept. 20-22—Nashville, Tenn.**
AMERICAN WATER WORKS ASSOCIATION—Kentucky–Tennessee Section. Annual Meeting (Andrew Jackson Hotel). Sec.-Treas., J. Wiley Finney, Jr., 420 Sixth Ave. N., Nashville, Tenn.

***Sept. 21-23—Cumberland Falls State Park, Ky.**
KENTUCKY MUNICIPAL LEAGUE. Annual Meeting (DuPont Lodge). Exec. Sec., Carl B. Wachs, McVey Hall, University of Kentucky, Lexington, Ky.

***Sept. 21-23—Dayton, Ohio**
AMERICAN WATER WORKS ASSOCIATION—Ohio Section. Annual Meeting (Hotel Biltmore). Sec.-Treas., M. E. Druley, 68 N. South St., Wilmington, Ohio.

***Sept. 22-24—Atlanta, Ga.**
GEORGIA WATER AND SEWAGE OPERATORS' SCHOOL. (Georgia Institute of Technology). Sec.-Treas., A. T. Storey, Georgia Water and Sewage Association, 1210 Hemphille Ave. NW., Atlanta, Ga.

***Sept. 22-24—Detroit, Mich.**
MICHIGAN MUNICIPAL LEAGUE. Annual Meeting (Statler Hotel). Exec. Dir., John H. Huss, 205 S. State St., Ann Arbor, Mich.

***Sept. 23-24—Milwaukee, Wis.**
LEAGUE OF WISCONSIN MUNICIPALITIES. Annual Meeting (Hotel Schroeder). Exec. Sec., Frederick N. McMillin, 30 E. Johnson St., Madison 3, Wis.

***Sept. 23-24—Oakland-Berkeley, Cal.**
WESTERN GOVERNMENTAL RESEARCH ASSOCIATION. Annual Meeting (Hotel Claremont). Exec. Sec., Stanley Scott, 346 Library Annex, University of California, Berkeley, Calif.

***Sept. 23-24—Youngstown, Ohio**
AIR POLLUTION CONTROL ASSOCIATION—East Central Section. Annual Meeting (Pick–Ohio Hotel). Chairman, Howard J. Scott, 1404 E. 9th St., Cleveland, Ohio.

***Sept. 26-28—Jefferson City, Mo.**
MISSOURI WATER AND SEWAGE CONFERENCE. Annual Meeting (Governor Hotel). Sec.-Treas., W. A. Kramer, State Office Bldg., Jefferson City, Mo.

***Sept. 26-28—Jefferson City, Mo.**
AMERICAN WATER WORKS ASSOCIATION—Missouri Section. Annual Meeting (Hotel Governor). Sec.-Treas., W. A. Kramer, State Office Bldg., Jefferson City, Mo.

***Sept. 26-30—Cincinnati, Ohio**
NATIONAL ASSOCIATION OF ASSESSING OFFICERS. Annual Meeting (Netherland Plaza Hotel). Exec. Dir., Albert W. Noonan, 1313 E. 60th St., Chicago, Ill.

Sept. 26-30—New Orleans, La.
INTERNATIONAL ASSOCIATION OF CHIEFS OF POLICE. Annual Conference (Roosevelt Hotel). Exec. Sec., Edward J. Kelly, 1424 K St. NW., Washington 5, D. C.

***Sept. 26-30—Philadelphia, Pa.**
AMERICAN SOCIETY OF PLANNING OFFICIALS. Annual Meeting (Benjamin Franklin Hotel). Exec. Dir., Dennis O'Harrow, 1313 E. 60th St., Chicago 37, Ill.

Sept. 27-30—Kansas City, Mo.
INSTITUTE OF TRAFFIC ENGINEERS. Annual Meeting (Muehlebach Hotel). Exec. Sec., M. Mansfield Todd, Strathcona Hall, New Haven 11, Conn.

***Sept. 27-30—Pittsburgh, Pa.**
AMERICAN TRANSIT ASSOCIATION. Annual Meeting (William Penn Hotel). Gen. Sec., Arthur W. Baker, 292 Madison Ave., New York 17, N. Y.

(*Continued on page* 170)

(Continued from page 169)

***Sept. 27-Oct. 1—Bretton Woods, N. H.**
NATIONAL TAX ASSOCIATION. Annual Meeting (Mount Washington Hotel). Exec. Sec., Ronald B. Welch, NTA, P. O. Box 1799, Sacramento 8, Calif.

Sept. 27-Oct. 1—St. Louis, Mo.
NATIONAL RECREATION CONGRESS. Annual Meeting (Jefferson Hotel). Sec., T. E. Rivers, 315 4th Ave., New York 16, N. Y.

***Sept. 28-30—Green Bay, Wis.**
AMERICAN WATER WORKS ASSOCIATION—Wisconsin Section. Annual Meeting (Northland Hotel). Sec., Leon A. Smith, City Hall, Madison, Wis.

***Sept. 28-30—Mitchell, S. D.**
SOUTH DAKOTA WATER AND SEWAGE WORKS. Annual Meeting (Lawler Hotel). Exec. Sec., Charles E. Carl, Director, Division of Sanitary Engineering, State Department of Health, Pierre, S. D.

***Sept. 28-30—Nashville, Tenn.**
SOUTHEASTERN ASSOCIATION OF STATE HIGHWAY OFFICIALS. Annual Meeting (Hotel Andrew Jackson). Sec.-Treas., Berrien W. Davis, State Highway and Public Works Commission, Raleigh, N. C.

***Sept. 29-Oct. 1—Columbus, Ohio**
OHIO MUNICIPAL LEAGUE. Annual Meeting. Exec. Dir., Allen E. Pritchard, Jr., 55 E. State St., Columbus, Ohio.

***Oct. 3-5—Lake Placid, N. Y.**
COUNTY OFFICERS ASSOCIATION OF THE STATE OF NEW YORK. Annual Meeting (Lake Placid Club). Exec. Sec., Donald C. Scribner, County Bldg., Johnstown, N. Y.

Oct. 3-8—Baltimore, Md.
AMERICAN INSTITUTE OF PARK EXECUTIVES. Annual Conference (Hotel Lord Baltimore). Exec. Sec., Alfred B. LaGasse, 143 S. Lincoln, Aurora, Ill.

***Oct. 4-5—Atlantic City, N. J.**
PENNSYLVANIA MUNICIPAL AUTHORITIES ASSOCIATION. Annual Conference (Haddon Hall). Sec.-Treas., Claude C. Fogelman, 1717 Main St., Northampton, Pa.

***Oct. 4-6—Poland Spring, Maine**
NEW ENGLAND WATER WORKS ASSOCIATION. Annual Meeting (Poland Spring House). Sec., Joseph C. Knox, 75 Tremont St., Boston 8, Mass.

***Oct. 4-7—Atlantic City, N. J.**
INTERNATIONAL MUNICIPAL SIGNAL ASSOCIATION. Annual Meeting (Ambassador Hotel). Sec., Irvin Shulsinger, 130 W. 42nd St., New York 36, N. Y.

***Oct. 6-7—Jefferson City, Mo.**
MISSOURI MUNICIPAL LEAGUE. Annual Meeting (Governor Hotel). Exec. Dir., Bruce J. Carl, 212-214 Guitar Bldg., Columbia, Mo.

***Oct. 6-8—St. Paul, Minn.**
AMERICAN WATER WORKS ASSOCIATION—Minnesota Section. Annal Meeting (Hotel Lowry). Sec., Leonard N. Thompson, 216 Court House, St. Paul, Minn.

***Oct. 7-8—Des Moines, Iowa**
LEAGUE OF IOWA MUNICIPALITIES. Annual Meeting (Hotel Fort Des Moines). Exec. Sec., Max A. Conrad, 303 Tampa Bldg., Burlington, Iowa.

***Oct. 10-12—Springfield, Ill.**
ILLINOIS MUNICIPAL LEAGUE. Annual Meeting (Leland Hotel). Exec. Dir., A. L. Sargent, 537 S. Fourth St., Springfield, Ill.

***Oct. 11-14—Cincinnati, Ohio**
FEDERATION OF SEWAGE AND INDUSTRIAL WASTES ASSOCIATION. Annual Meeting (Netherland-Plaza Hotel). Exec. Sec.-Ed., W. H. Wisely, 325 Illinois Bldg., Champaign, Ill.

***Oct. 11-14—Philadelphia, Pa**
NATIONAL ASSOCIATION OF HOUSING AND REDEVELOPMENT OFFICIALS. Annual Meeting (Bellevue-Stratford Hotel). Exec. Dir., John D. Lange, 1313 E. 60th St., Chicago 37, Ill.

***Oct. 12-15—Cincinnati, Ohio**
OHIO SEWAGE AND INDUSTRIAL WASTES TREATMENT CONFERENCE. Annual Meeting in conjunction with the FEDERATION OF SEWAGE AND WASTES ASSOCIATION Meeting (Netherland-Plaza Hotel). Sec.-Treas., W. E. Conrad, Ohio Departments Bldg., Columbus 15, Ohio.

***Oct. 13-15—Cedar Rapids, Iowa**
AMERICAN WATER WORKS ASSOCIATION—Iowa Section. Annual Meeting (Hotel Roosevelt). Exec. Sec., H. V. Pedersen, Marshalltown Water Works, Marshalltown, Iowa.

***Oct. 17-20—Los Angeles, Calif.**
LEAGUE OF CALIFORNIA CITIES. Annual Meeting (Biltmore Hotel). Exec. Dir., Richard Carpenter, Hotel Claremont, Berkeley 5, Calif.

***Oct. 18-21—Houston, Texas**
INTERNATIONAL ASSOCIATION OF FIRE CHIEFS. Annual Convention (Rice Hotel). Exec. Sec., Chief Jay W. Stevens, Pacific Coast Association of Fire Chiefs, Merchants' Exchange Bldg., San Francisco 4, Calif.

***Oct. 18-22—Chicago, Ill.**
NATIONAL SAFETY CONGRESS AND EXPOSITION. Annual Meeting (Conrad Hilton Hotel). Gen. Sec., R. L. Forney, National Safety Council, 425 N. Michigan Ave., Chicago 11, Ill.

***Oct. 24-27—Birmingham, Ala.**
AMERICAN WATER WORKS ASSOCIATION—Alabama-Mississippi Section. Annual Meeting (Tutwiler Hotel). Sec.-Treas., C. W. White, 537 Dexter Ave., Montgomery, Ala.

***Dec. 2-7—San Juan, Puerto Rico**
INTERAMERICAN MUNICIPAL ORGANIZATION. Interamerican Congress of Municipalities. For information address Comision Panamericana de Cooperacion Intermunicipal, 351 Obispo St., Habana, Cuba.

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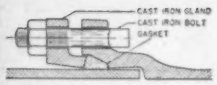

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Municipal & Civic Publications

The Municipal Year Book, 1954

International City Managers Association, 1313 E. 60th St., Chicago 37, Ill. June 1954. 600 pp. $10.

The 21st annual edition of *The Municipal Year Book*, the most useful and comprehensive reference source on municipal trends in the United States, contains more than 600 pages of statistics and analysis of developments in American cities, compared with 256 pages in the first edition issued in 1934.

Entirely new sections in the 1954 issue include: controls and services in unincorporated urban fringes; sewer-service charges in cities over 5,000 population; refuse-collection and disposal practices in over 1,000 cities; and governmental, planning, finance, and census data for 174 urban counties which contain over one-half of the population of the United States.

The *Year Book* contains continuing useful information on governmental units, municipal personnel and salary trends and data, fire and police equipment data, reports on municipal activities and finance, directories of offices, and, for each major activity, new books and reports, selected model municipal ordinances, and analysis of court decisions affecting cities.

The City of Man

By Christopher Tunnard. Charles Scribner's Sons, New York, N. Y. 1953. 424 pp. $8.50.

This important book on city planning reemphasizes the role of art in the city building process, including architecture, landscape architecture, decorative elements, painting and sculpture, etc. In broad strokes, the author reviews the American city planning tradition — the origins of the open lot, why Americans like to live under their own roofs, what our system of land sale and building has produced, and why a change in the development of our cities is to be expected.

American urban inventions are described: the Romantic Suburb, the park system, the City Beautiful movement, the skyscraper, the shopping center. The author urges a concept of planning in three dimensions with the aid of the arts, based on an understanding of economic and social tradition.

The book is well written, in a nontechnical style, particularly suitable for the lay reader.

Design and Construction of General Hospitals

By U. S. Department of Health, Education and Welfare, Public Health Service. Published by F. W. Dodge Corp., New York, N. Y. and Modern Hospital Publishing Co., Chicago, Ill. 1954. 214 pp. $12.

A collection of data on hospital planning and construction for architects and hospital administrators, this book is the product of 11 years of research, continually revised to conform with the most recent hospital techniques and operating practice. The study has done so much research for the hospital planner that it will be an invaluable guide to be adapted as required to local needs and conditions.

The first part of the study gives a series of floor plans, ranging from an 8-bed community clinic to a 200-bed urban hospital. There follows a detailed discussion of hospital planning problems from site to equipment. The third section contains detailed solutions for individual departments and rooms. And in the final section equipment lists are given for 50-, 100-, and 200-bed general hospitals.

Urban Traffic

A Function of Land Use—By Robert B. Mitchell and Chester Rapkin. Institute for Urban Land Use and Housing Studies. Columbia University. 1954. 226 pp. $5.

This book develops methods for analysis of the flow of traffic, with particular attention to the central causes—the necessity for people to move and goods to be distributed from one place to another. Showing that certain movements are regular and predictable and others sporadic and only predictable in the mass, the authors find that all movements fall within certain large systems. *Urban Traffic* explores the relationships between various types of establishments and the movement of persons and goods.

Using Philadelphia to illustrate its methods, the book nevertheless includes many figures and tables which draw upon analyses of traffic in other cities.

Garbage Collection and Disposal

Methods and Practices in Washington Cities. By Bert Balmer. Washington Municipal Bulletins (Nos. 163 and 164). Published by the Association of Washington Cities in cooperation with the Bureau of Governmental Research and Services, University of Washington, Seattle 5, Wash. February 5, 1954. 38 pp.

Intended to aid cities contemplating either a revision of their present system or the establishment of a collection service, this bulletin brings up to date existing data on methods of garbage collection and disposal in Washington cities. It contains a summary of residential and business rates for collection, a breakdown on cost data relating to both municipal and contract collection, and quotes the applicable state statutes municipalities must observe.

Local Government

By William Miller. Reprinted from 1953 Annual Survey of American Law. New York University School of Law, 40 Washington Square South, New York 3, N. Y. 1953. 30 pp.

This survey of developments in the law of local government covers two years, 1952 and 1953, during which the case law, legislation, and literature carried notable contributions to the moral tone of federal, state, and local government. There was also, during this period, a revival of interest in home rule and in the attendant legal forms. Annexation and consolidation, police power generally, traffic problems, local services, elections, indebtedness, public works and purchasing, and zoning and planning have all come in for a large volume of legislation.

Building a Better Home Town

A Program of Community Self-Analysis and Self-help—By H. Clay Tate. Harper & Brothers, 49 East 33rd St., New York 16, N. Y. 1954. 236 pp. $3.50.

The author of this new book, editor of the Bloomington, Ill., *Daily Pantagraph*, urges the return of young people to the small communities of the nation and the revitalization of those communities to bring them into line with the needs and desires of the younger generation. The continuity, influence, and way of life of small communities are to him the essence of America, and he rejects the urban patterns of anonymous mass culture.

In this book, Mr. Tate tells how Bloomington, instead of trying to swallow up the smaller towns around it, has aided them to retain their primary character. As he puts it, "This is the story of those who no longer run away from the problems of their own communities to seek Utopia elsewhere, but stay at home to build better communities. That is a reversal of a national trend."

Councilmen at Work

By Arthur W. Bromage. The George Wahr Publishing Co., Ann Arbor, Mich. 1954. 119 pp.

The experiences of a councilman serving within a weak-mayor form of government in Ann Arbor, Mich. are summarized and evaluated. The book also contains comparative observations on English and Irish councilmen at work. It tells of the problems, functions and duties, the pressures and the public relations activities that keep any councilman busy. The book is a sequel to two others: *On the City Council* and *A Councilman Speaks*, and the author is well known as professor of Political Science at the University of Michigan.

Recommended Reorganization of the Municipal Water Works System, San Antonio, Texas

By the Department of Industrial Economics, Southwest Research Institute, 8500 Culebra Road, San Antonio 6, Texas. 1954. 103 pp.

The conclusions and recommendations in this report are based on an exhaustive study of the operations of the present water-works system. The organizational framework recommended will serve as a foundation upon which to refashion and streamline the administrative machinery. This is essentially a manual of procedure for organizational units down to and including the sectional level.

Capital Improvement Program

Cookeville, Tenn. Cookeville City Planning Commission. 1954. 37 pp.

This report considers the city's needs, as well as its financial condition. Projections of revenues and expenses for the next six years were compiled in order to approximate the amount of funds which will be available annually for capital improvements. The projects scheduled are those needed in the immediate future.

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National Municipal Law Review

National Institute of Municipal Law Officers, 726 Jackson Place NW., Washington 6, D. C. 1954. 504 *pp.* $10.

The 17th edition of this volume contains a new feature—ten special articles submitted by municipal attorneys and their assistants in a contest designed to obtain material on subjects of value to NIMLO members. The award-winning article is "Legal Procedures for Elimination of Unsafe Buildings." Honorable mention articles are: "Municipal Business, Occupation and Gross Receipts Taxes," "State of Washington Telephone Rate Cases," and "The Taxpayer's Stake in Municipal Tort Liability." Other important subjects covered are: the maintenance of cash surplus funds by municipalities; due process in real property tax collection enforcement proceedings; cities and obscene literature; public inspection of investigatory reports of municipal officials; rezoning amendment's requirement that new use must be begun within a fixed period of time; and state prosecution of municipalities for water pollution.

The volume also contains 22 NIMLO Committee Reports on fields of major municipal concern, and addresses and papers presented by NIMLO members and others at the NIMLO annual conference.

The volume is similar in form and style to preceding volumes, and is a valuable reference work for not only busy city attorneys, but for others seeking up-to-date information in the municipal field.

Quiet, Please!

Noise Abatement for Philadelphia.—Bureau of Municipal Research, 311 S. Juniper St., Philadelphia 7, Pa. March 1954. 29 *pp.*

The present report is one in a series prepared by the Bureau to make Philadelphia more attractive. Education, enactment of necessary supplementary legislation, and persistent enforcement of the anti-noise laws are recommended in this preliminary discussion.

Other Reports Received

Administration and Government

BROOKLINE, MASS. — 248th Annual Report of the Town Officers and Town Records for the Year Ending December 31st, 1953. 294 pp. Tables.

FLORIDA—Municipal Annexation in Florida, by William C. Havard. Civic Information Series, No. 18. Public Administration Clearing Service of the University of Florida, Gainesville, Fla. Tables. 20 pp.

GLEN BURNIE, MD.—Proposed Incorporation of Glen Burnie, by Don L. Bowen and Albert L. Alford. Bureau of Governmental Research, College of Business and Public Administration, University of Maryland, College Park, Md. Tables. 35 pp.

JANESVILLE, WIS.—"The Doors Are Open." 1953 Report to Citizens. April 2, 1954. Newspaper Form. Illus. 16 pp.

MUSKEGON, MICH.—The Story of a City Government at Your Service. Muskegon reports to its people for the year 1953. April 10, 1954. Illus. Tables. Newspaper Form. 12 pp.

NEWPORT BEACH, CALIF. — This Is Your City—1954. Available from office of City Manager, Mr. John J. Sallors. Illus. 19 pp.

● The death of two small brothers on their way to a school hayride party is a tragic and costly example of how important proper traffic warning signs are to safety. There is no real protection without them.

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Reprinted from the Minneapolis Tribune, March 8, 1954

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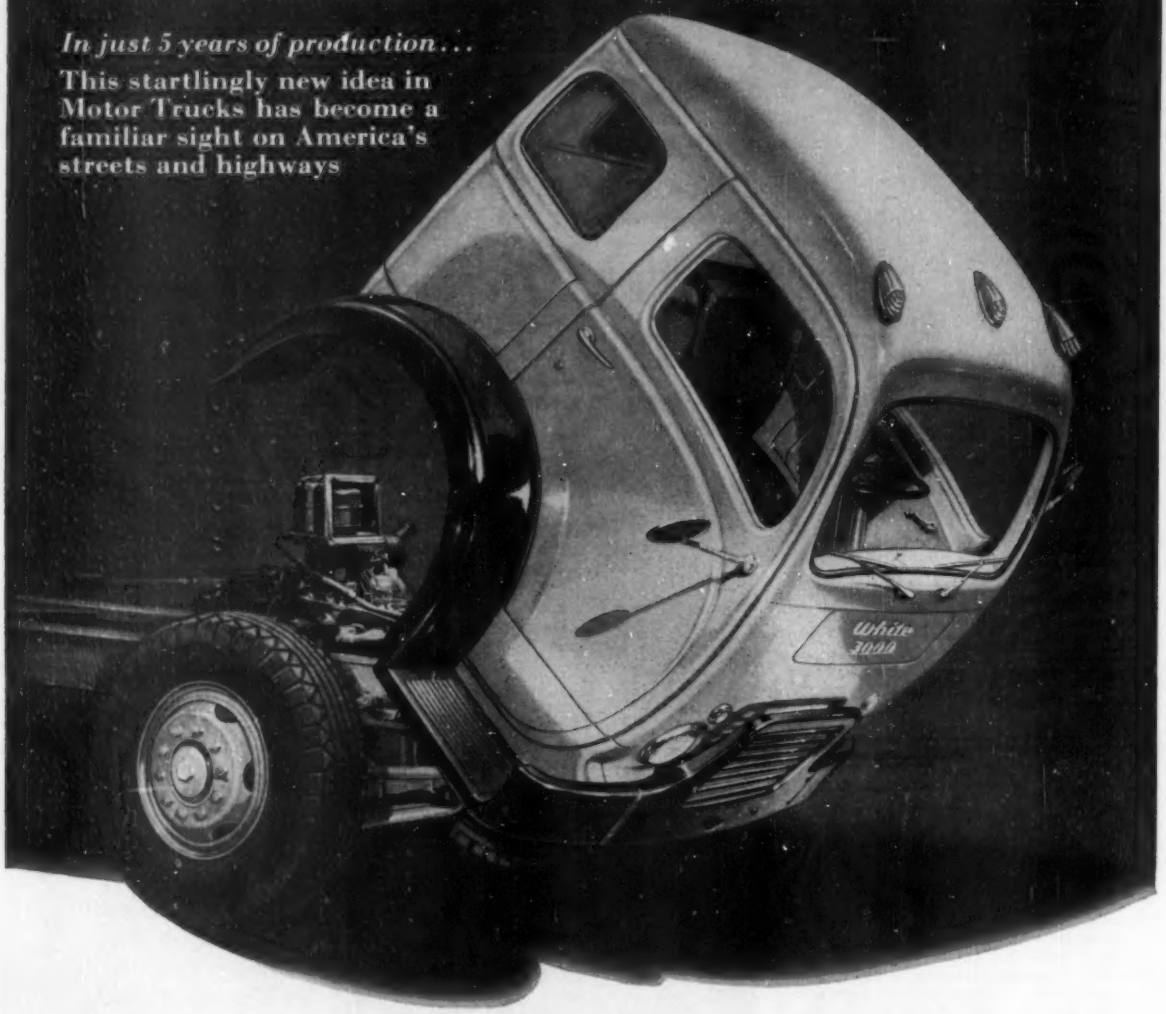

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NEW YORK, N. Y.—The City Gets a Check-up. A summary of the Reports of the Mayor's Committee and the Temporary State Commission to Study the Organizational Structure of the City of New York. Citizens Union Research Foundation, Inc., 5 Beekman St., New York 38, N. Y. Tables. 15 pp.

PENNSYLVANIA — Pledges Against the Future. A review of the states' standing commitments to its local governments. Pennsylvania Economy League, Inc., 611 Blackstone Bldg., Harrisburg, Pa. Unpaged.

QUAKERTOWN, PA. — Fellow Citizens. Fifth annual report of the Borough Manager, Ralph L. Yanish. Illus. 31 pp.

GENERAL—Local Government in Metropolitan Areas. State and Local Government Special Studies. Number 36. For Sale by the Bureau of the Census, Washington 25, D. C. Tables. 24 pp. 25 cents.

Annual Reports

EAST WILLISTON, N. Y.—East Williston Reports . . . 1953. Inaugurated by Mayor Frank E. Devlin for year ended February 28, 1954. Illus. Tables. 32 pp.

HOPKINS, MINN.—The City—What It Does for YOU! Illus. Tables. 24 pp.

LOS ANGELES COUNTY, CALIF. — Guiding Growth. Annual Report, 1952-1953. Available from The Regional Planning Commission, 108 W. 2nd St., Los Angeles 12, Calif. Tables. Maps. 64 pp.

MOUNTAIN BROOK, ALA. — Annual Report, 1953. Submitted by City Council. Illus. Tables. 16 pp.

NEWTON, MASS.—Annual Reports Weights and Measures Department. For year ending December 31, 1953. Illus. Tables. Graphs. 19 pp.

PARK FOREST, ILL.—Fifth Anniversary Report Commemorating the Incorporation of the Village. Obtainable from Henry H. Dietch, Village President.

WYANDOTTE, MICH.—60th Annual Report of the Department of Municipal Service. Tables. Illus. 56 pp.

Finance and Taxation

BALTIMORE, MD.—Pertinent Financial Data. Compiled and Issued by Commission on Governmental Efficiency and Economy, Inc., Mercantile Trust Bldg., Baltimore 2, Md. January 1954. Unpaged.

BAYTOWN, TEXAS — Annual Budget for the Fiscal Year Ending September 30, 1954. Compiled by C. Darwin Middleton, City Manager. Tables. 97 pp.

GLENCOE, ILL.—Budget Report for 1954-55. March 1954. Available from Village Manager Robert B. Morris. Tables.

KANSAS—Municipal Finance . . . A Study of Nine First Class Cities. By Harry O. Lawson. Fiscal Information Series Number One. Governmental Research Center, University of Kansas, Lawrence, Kans. Tables. Graphs. 35 pp.

MICHIGAN—Michigan Municipal Wages and Salaries. Information Bulletin No. 73. April 1954. Compiled by Michigan Municipal League, 205 S. State St., Ann Arbor, Mich. Tables. 121 pp. Price $3.50.

MINNEAPOLIS, MINN.—Financial Statistics of the City. Issued by the Board of Estimate and Taxation, City Hall, Minneapolis. 1954. Tables. 48 pp.

NEW MEXICO — Studies in Business and Economics, No. 2. Multipump Filling Stations: an Economic Appraisal, by Howard V. Finston. Available from Bureau of Business Research, Univer-

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PASSAIC, N. J.—Capital Improvements Program and Budget, as Adopted by the Planning Commission. 9 pp. Mimeo.

ROANOKE, VA. — City Auditor's Financial Report for Fiscal Year Ended, December 31, 1953. Tables. 69 pp.

NEW YORK—Digest of 1954 Annual Report of the Comptroller, by J. Raymond McGovern, Comptroller. Illus. Tables. Graphs. 34 pp.

WINSTON-SALEM, N. C.—Statement of Financial Information, January 1, 1954. Tables. Unpaged.

GENERAL — Revenue Preview. A Compilation of Coming Special Municipal Issues—and a possible "timetable" therefor. By Tucker, Anthony & Co., 120 Broadway, New York 5, N. Y. Mimeo. Unpaged.

Miscellaneous

NEW JERSEY — Distribution of Certain Weeds of Economic Importance in New Jersey. Circular No. 392. November 1953. Address W. H. Allen, Secretary, Department of Agriculture, Trenton, N. J. 14 pp. Maps.

SYRACUSE, N. Y. — Annual Report of the Department of Engineering. Illus. Tables. Appendix. 58 pp.

NORWOOD, MASS.—1953 at a Town Library. Available from Morrill Memorial Library, Norwood, Mass. Illus. Brochure.

Parks and Playgrounds

PASSAIC, N. J.—A Park and Playground Plan for Passaic. Report to the Planning Commission of the City by the Passaic-Bergen Community Planning Association. Master Plan Report No. 6. January 1953. Maps. Tables. 8 pp.

Planning, Housing and Zoning

CAMBRIDGE, MASS. — Social Characteristics of Cambridge Neighborhoods. This report is supplementary to Thirteen Neighborhoods: One City, An Analysis of Residential Areas. Cambridge Planning Board in Collaboration with Cambridge Social Agency Executive, 1953. Maps. Tables. 29 pp.

CHICAGO, ILL.—Relocation in Chicago 1953. Office of Housing and Redevelopment Coordinator, 69 W. Washington St., Room 1610, Chicago 2, Ill. March 1954. Tables. 6 pp.

CLIFTON, N. J.—Land Use Plan. Prepared for the Planning Board by Passaic-Bergen Community Planning Association 3 pp. Maps.

DAYTON, OHIO—Progress Report 1953. Vol. IV, No. 4. Report of the City Manager to City Commission. Illus. 15 pp.

EAST RUTHERFORD, N. J. — An Ordinance Establishing Rules, Regulations and Standards Governing the Subdivision of Land within the Borough of East Rutherford. Available from the Planning Board. 17 pp.

IOLA, KANS.—A Planning Survey. Report prepared for Planning Commission by the Governmental Research Center, University of Kansas. Special Report No. 48. Maps. Tables. Graphs. 145 pp. Limited supply available at $2.

LIVONIA, MICH.—Livonia U. S. A. Available from Mayor's Office, 33110 Five Mile Road, Livonia, Mich. Illus. Unpaged.

MARYLAND–WASHINGTON — Population Patterns in the Regional District. Technical Bulletin No. 1. Prepared by the

(*Continued on page* 181)

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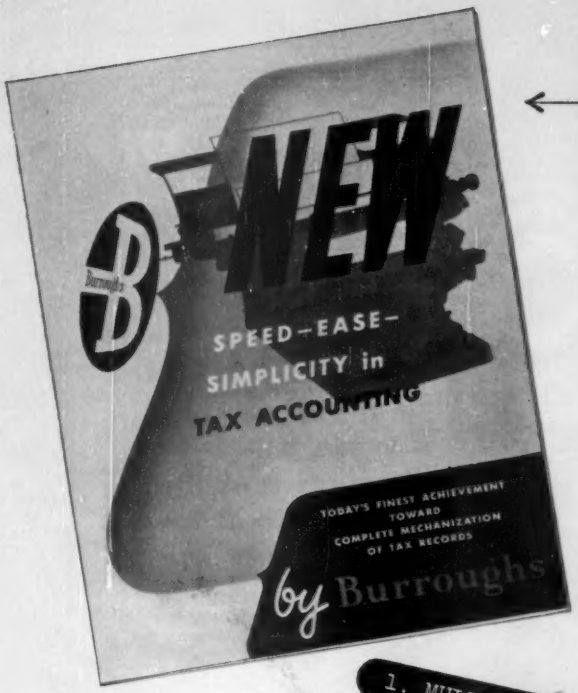

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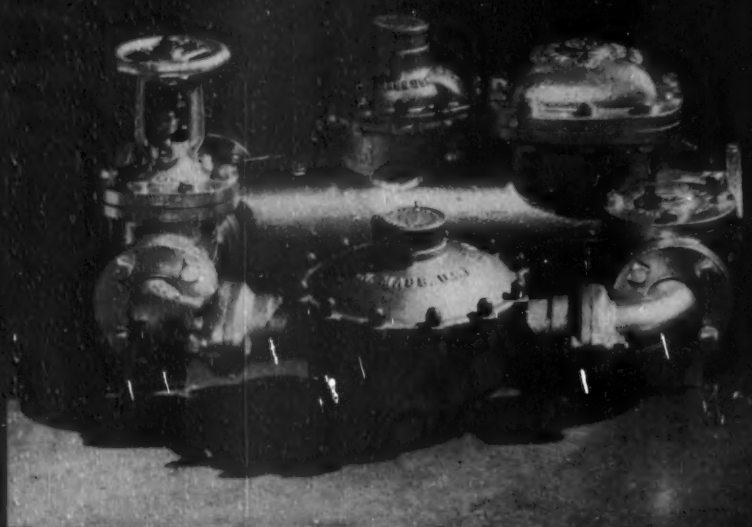

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BRANCH OFFICES: NEW YORK PORTLAND, ORE. PHILADELPHIA ATLANTA DALLAS CHICAGO SAN FRANCISCO LOS ANGELES

Changing Face Of Venezuela

(*Continued from Page* 101)

units were built by that same agency throughout the Republic.

The policy has been to develop projects of sufficient size to be planned as neighborhood units with all community facilities. This year the Banco is determinately attacking the problem of Caracas' hillside slums and has begun a construction program of tall low-rent apartments. While many questions can be raised as to the suitability of this dwelling type for low-income families, the Banco Obrero's experiment in this direction will bear close watching. The first such experimental unit of 14 stories, "Cerro Grande," is now nearing completion.

National Commission for City Planning

Fortunately, the Government of Venezuela has recognized that planning is essential to guide in some orderly fashion this explosive urban and industrial growth. The Comision Nacional de Urbanismo has been set up at the national level as an advisory planning agency, well staffed with competent and enthusiastic technicians and supported by an ample budget (about $1,000,000 for this year) to make studies and prepare master plans for cities and regions at the request of municipalities, provincial government, and the various national ministries.

Under the able leadership of its President, Leopoldo Martinez Olavarria, and its Technical Director, Gustavo Ferrero Tamayo, and with the temporary assistance of such consultants as Francis Violich, of the University of California, and Maurice Rotival, of Yale, the Planning Commission has prepared preliminary master plans for Caracas, Maracaibo, and several other municipalities. A most comprehensive regional plan for the development as a recreation center, of the pearl-fishing island of Margarita, is now nearing completion. Perhaps the most significant piece of work is the comprehensive zoning ordinance, the first of its kind in Latin America, and in some aspects more advanced than most zoning ordinances in the U. S., which has just been completed and is about to be adopted by the Municipality of Caracas.

In spite of the customary frustrations of city planning effectuation, steps have been taken to implement the master plans, especially the one for Caracas, and it can be said that the Venezuelan Planning Agency is a model of its kind in Latin America and a valuable and valiant force in the country's development.

A Living Memorial Beautifies City Hall

MRS. MAYME FITTON, of West Palm Beach, Fla., each morning brings to her place of work, which is the City Hall, all kinds of lovely flowers that she has grown. These she arranges in vases and places in conspicuous spots in the building as her memorial to her son, Jim Bob Prickett, who was killed when his Marine division invaded Saipan in World War II.

Her habit soon became the talk of City Hall, and City Manager James J. Mott asked Park Director Paul Dreher to have some city-grown gladioli brought in to supplement Mrs. Fitton's contribution. Each day now she arranges bouquets out of flowers from both sources as things of beauty and a fragant memorial.

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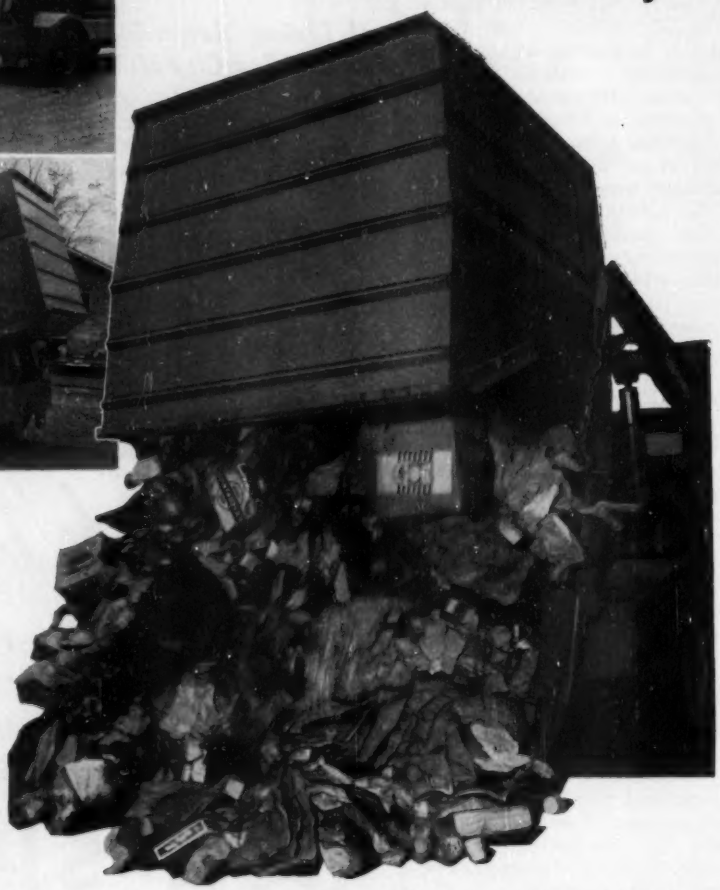

What you see above is a truck-mounted Dempster-Dumpster picking-up, hauling and then dumping a 10 cu. yd. Dempster-Dumpster Detachable Container. Instead of a conventional truck with loading crew, you have a truck-mounted Dempster-Dumpster with only one man, the driver, handling scores of detachable containers. These big containers replace hundreds of unsanitary cans, crates, barrels, etc. at hospitals, schools, market, housing and apartment areas. And your city has no expense of loading. The loading is done for you by the people who create the rubbish. The Dempster-Dumpster services the containers on pre-arranged schedule—handling 15 to 25 daily, one after another, with one man.

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DEMPSTER BROTHERS, 864 Dempster Bldg., Knoxville 17, Tennessee

(*Continued from page 176*)

Maryland–National Capital Park and Planning Commission, Silver Spring, Md. April 1954. Maps. Tables. 12 pp.

NUTLEY, N. J.—Southwest Sector Redevelopment Study. Map. Mimeo. Prepared by Passaic–Bergen Community Planning Association. Map. Mimeo. 7 pp.

PASSAIC, N. J.—Community Facilities Plan report by Passaic-Bergen Planning Association. Master Plan Report Number 7. October 1953. Mimeo. 6 pp.

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PROVIDENCE, R. I. — Railroad Relocation. Publication Number 11. September 19[illegible]. Map. 18 pp.

SAN FRANCISCO, CALIF.—A Study of the Effect of Land Acquisition for the Bayshore Freeway on Industry. Available from Coro Foundation, Pacific Bldg., San Francisco 2. March 1954. Unpaged.

STEUBENVILLE, OHIO—Your City 1953. Annual Report of City Planning Commission, Board of Zoning Appeals. 16 pp.

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——Wichita in Mid-Passage. Published by *The Wichita Sunday Beacon*, February 21, 1954. Illus. Newspaper Form. 8 pp.

GENERAL—Construction Financing for the Home Builder. Published by Housing and Home Finance Agency. For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. 70 cents.

Public Works

PORTLAND, MAINE—Annual Report for the Year 1953. Department of Public Works. Tables. Unpaged.

Refuse Collection and Disposal

CAMDEN COUNTY, N. J.—Garbage Collection and Waste Disposal. Submitted by County Planning Board, Room 421, City Hall, Camden 1, N. J. Illus. Map. Table. 36 pp.

Sewage

ALEXANDRIA, VA. — Sanitation Authority First Annual Report Covering the Period, December 20, 1952, through February 15, 1954. Illus. Graphs. 18 pp.

CINCINNATI, OHIO — 1953 Sewage Disposal Program. Fourth Annual Report. Graph. Map. Table. 33 pp.

KENOSHA, WIS.—Thirteenth Annul Report. Sewage Treatment Plant. Graphs, Tables. 10 pp.

Street Construction and Highway Maintenance

GENERAL — Calcium Chloride in Concrete. First Edition Manual CM-1. Research and Distribution of Information Relative to the Uses of Calcium Chloride. Calcium Chloride Institute, 909 Ring Bldg., Washington 6, D. C. Illus. Graphs. 40 pp.

Traffic

BOSTON, MASS. — 1952 Annual Report of Traffic Commission for the Year Ending December 31, 1952. Graphs. Tables. 83 pp.

LODI, N. J.—A Parking Program. A report to the Chamber of Commerce by Passaic–Bergen Community Planning Association. January 1954. Graphs. Tables. 23 pp.

PASSAIC, N. J.—Car Parks in the First 18 Months' Operation. The Parking Authority, Passaic, N. J. February 1954. Graphs. Map. 18 pp.

CLIFTON, N. J.—Curb Parking Study, November 1953. A Study to Determine the Need for Meter Installation. Presented by Passaic-Bergen Community Planning Association, Inc., 143 Prospect St., Passaic, N. J. Tables. 20 pp.

SAN FRANCISCO BAY AREA, CALIF.—Parking as a Factor in Business. Part 5—Trends in Economic Activity and Transportation, by David A. Revzan, School of Business Administration, University of California, Berkeley, Calif. 1953. Available from Highway Research Board, 2101 Constitution Ave., Washington 25, D. C. Tables. 321 pp. $2.10.

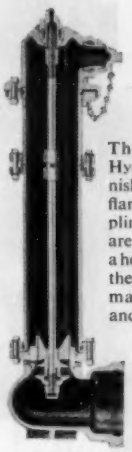
BEVERLY HILLS, CALIF.—The How? When? Where? of . . . Parking as a Municipal Problem of Growing Importance. Third in a series of Progress Reviews for the Citizens. Vol. I, No. 3. April 1954. Illus. Graphs. Unpaged.

Water Supply and Treatment

TAUNTON, MASS.—Annual Report of the Water Commissioners for the Year 1953. Table. Graph. 26 pp.

Solidly Built

The R. D. Wood Swivel Joint Hydrant is designed to provide maximum reliability at lowest cost consistent with assured delivery of water at full pressure. It is solidly built and of the finest materials. Every point where rust and corrosion might interfere with operation is protected by at least one bronze surface.



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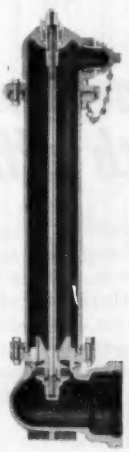

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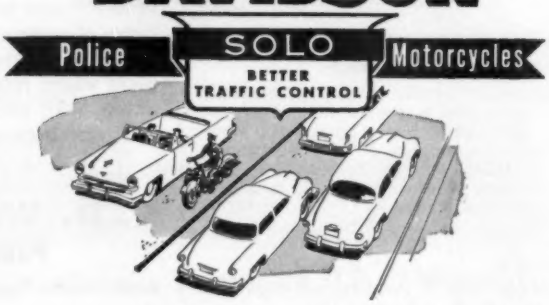
Get the facts about the 1954 Golden Anniversary models from your Harley-Davidson dealer today. He has your free copy of the valuable illustrated booklet — "More Effective Police Power." Or write Harley-Davidson Motor Company, Milwaukee 1, Wisconsin.



'Operation Walkout'

(*Continued from Page* 121)

discomfort of the thousands of people who had walked out to the loading perimeters and waited for the "All Clear"—many of them in light shoes and summer clothing. No one complained — the people were definitely aware of the seriousness and importance of the drill. Suddenly someone shouted: "Here they come!" and in the distance could be heard the large bombers approaching. They were B-29's, from Hamilton Field, Calif., and dropped leaflets at 10 a.m. As they approached, the silence was broken again by antiaircraft guns.

At 10:05 a.m. the All Clear sounded and the cold and wet populace started streaming back into town.

A hundred Civil-Defense officials from all over the United States attended the first Operation Walkout ever held in this country. Most of them expressed amazement at the fast, orderly walkout and the cooperation of the citizens under such adverse conditions.

Hundreds of doctors, dentists, pharmacists, nurses, and lay people assigned to the 40 outlying Casualty Stations of the city, reported for duty. Every doctor in the city not on emergency call participated.

Schools were evacuated and many held special exercises with doctors, dentists, nurses, and pharmacists participating.

At outside points many large brush and debris fires were set to give Auxiliary Firemen a practice workout.

During the forenoon volunteer women workers started to get together a luncheon to serve to some 125 out-of-town visitors. This meal was prepared on outside stoves built by Civil-Defense people. This same group of women will be training Mass Care Center teams.

Civil Air Patrol planes from Spokane joined in the test. They reported on breakdowns and traffic bottlenecks and also simulated flying in supplies from outlying towns.

The downtown wardens did an excellent job of briefing the people in office buildings and stores prior to the test. The 12-story Old National Building, and the 15-story Paulsen Medical-Dental Building were evacuated within five minutes—proof of good briefing and preparation.

Among the citizens waiting for the "All Clear" again and again it was heard, "Too bad it is raining," and they would add, "But this could have been the real thing," and "Bombers don't delay their departure because of the weather."

EDITOR'S NOTE: The United States Conference of Mayors released on April 30 a report entitled "Civil Defense: Present Evaluation," containing two brief statements by the F. C. D. A. Administrator, Mr. Val Peterson, and Mayor Elmer E. Robinsin of San Francisco, President of the Conference. The paper is available from the Conference office at 730 Jackson Place, N.W., Washington 6, D. C.

M.I.T. Offers Summer Planning Courses

OPPORTUNITY for general review of current planning techniques and basic planning principles is offered to city officials and professionals by the sixteenth in the series of annual two-week Special Summer Programs in the City and Regional Planning, offered by the School of Architecture and Planning at M.I.T., from Monday, August 23, through Friday, September 3. Tuition is $100, and further information can be obtained from Professor Ernest H. Huntress, Room 7-103, Massachusetts Institute of Technology, Cambridge 39, Mass.

The Department of City and Regional Planning also offers a two-year course, leading to a Master Degree in City Planning. Further information on this program is available from Professor F. J. Adams, Head of the Department.

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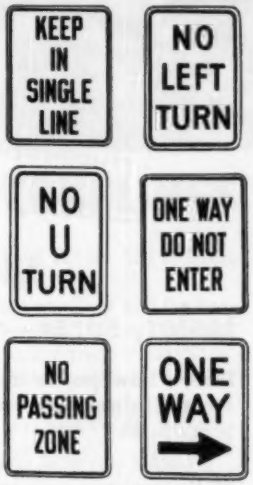
Traffic and Safety officials are invited to write for catalog.



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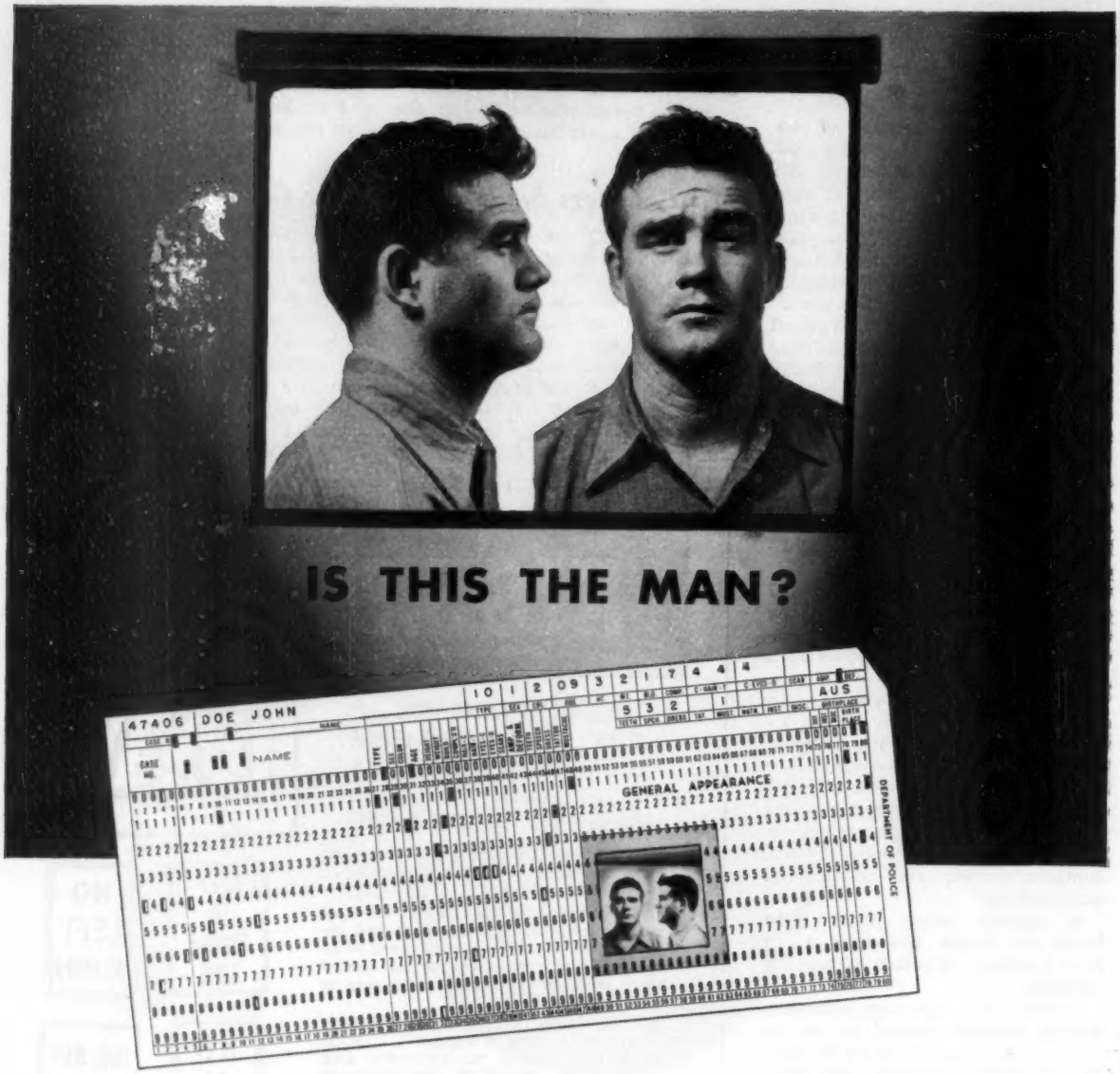

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New York City Gets Giant Coliseum

A GIANT four-level nine-acre Coliseum, the first public exhibit area of its kind in New York, is under construction by the Triborough Bridge and Tunnel Authority, headed by Robert Moses, Chairman. The air-conditioned building, and an integral 20-story office building tower, located in a two-block area at Columbus Circle on Manhattan's West Side, will cost $30,000,000, and is due for completion in two years.

Two 14-story apartment buildings financed by private capital will adjoin the new public facility, made possible through city acquisition of the land under Title I of the Housing Act of 1949, and transference of its easterly portion to the Authority in November 1953 for $2,182,000. In addition, the Authority will pay to the City of New York $42,000 a year in lieu of taxes, as well as all income over annual net revenues of $1,225,000. The city sold to private builders the part of the master block on which the two large modern apartment houses will be built.

Care has been taken to avoid congestion on surrounding streets. Trucks will be able to drive directly on to the first exhibition floor from both side streets, with a truck ramp leading directly from 58th Street to the second level main floor. Three large freight elevators, including one to accommodate the largest over-the-road trailer truck permitted on the highway system will also serve the second floor, and the third and fourth exhibition levels. The basement and subbasement of the structure will be used primarily as an off-street parking facility.

The Coliseum will have temporary seating facilities for up to 10,000 people. There are facilities for smaller exhibitions and meetings also.

Using Public Funds To Influence Voting

THE INTRIGUING QUESTION of expenditures by public bodies to influence a vote on a pending public question has once again arisen in New Jersey. The present case involved a referendum on a school bond issue. In this connection a booklet was prepared and paid for by the township board of education to provide all of the relevant facts upon which the voters might form their judgment, but it also contained several "vote yes" exhortations, and a dramatized portrayal of the dire consequences to follow if the bond election was not favorable. The court held that the power to spend money for the printing and distribution of an informational booklet may be necessarily and fairly implied from the express power to provide for the building, enlarging, repairing or furnishing of a school house.

In the case at bar, the court found that 17 pages of an 18-page booklet fairly presented the facts pro and con. To the extent that the expenditure went beyond such a presentation and exhorted the voters to vote favorably on the bond issue, however, it exceeded the implied power of the district. As the court stated, "The public funds entrusted to the board belong equally to the proponents and opponents of the proposition. . . ." Thus the expenditure for the public relations booklet was unauthorized, but it did not vitiate the election.*

---

* Citizens to Protect Public Funds v. Board of Education of Parsippany-Troy Hills Township, 13 N. J. 172, 98 A. (2d) 673 (1953).

From chapter on Local Government, by William Miller, in the Annual Survey of American Law, published in the *New York University Law Review* for February 1954.

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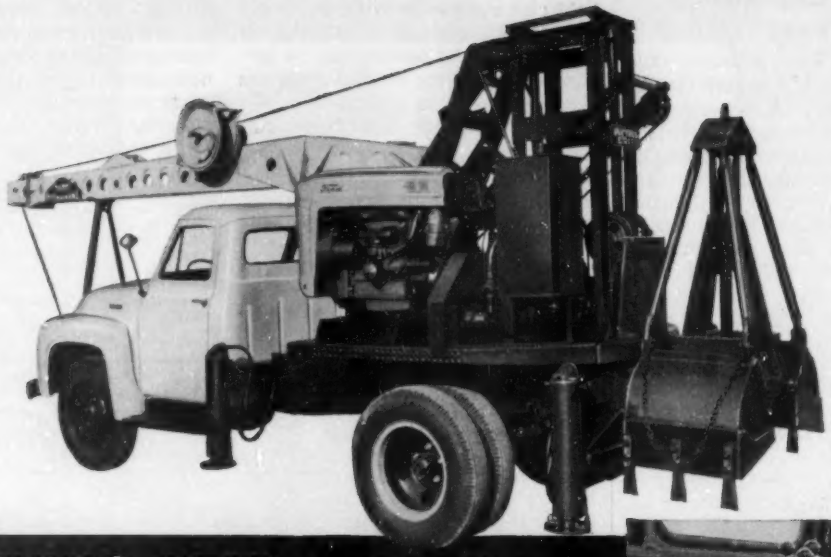
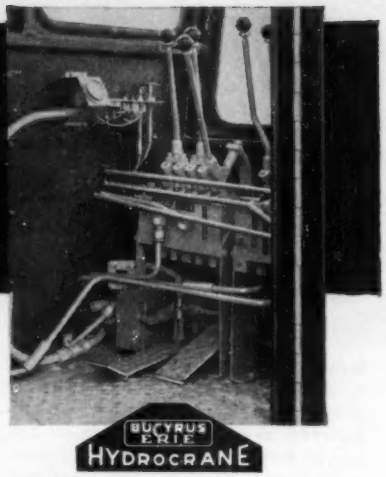


BUCYRUS-ERIE presents NEW UP-RATED SELF-POWERED HYDROCRANE with selector valve



Now Bucyrus-Erie offers a new, more powerful all-hydraulic crane-excavator — the self-powered H-3 Hydrocrane. Taking its power from its own 4-cylinder industrial engine instead of from the truck engine, the new self-powered Hydrocrane provides the following big advantages:

1. **Increased horsepower** through eliminating restrictive influence of side-mounted truck power take-off.
2. **Selector valve operation.** Power concentration selector unit permits channeling hydraulic fluid from all three pumps to one valve bank — increases line speeds up to 50%.
3. **Convenient operation.** Selector valve is foot operated — provides metered control of higher speeds—operator need not let go of hoist and swing levers to operate selector valve. Controls for power plant conveniently grouped at operator's station.
4. **Reduced crane maintenance** from simpler more direct power application. High pressure hoses through center pin leading from pumps to valve bank eliminated. Fewer belts, shafts, and hoses.
5. **Improved efficiency.** Improved oil filtering with less restriction. Better cold weather performance.
6. **Improved truck engine life.** Economy results from fewer truck repair bills. Generator for independent power plant re-charges motor truck battery. Overall fuel consumption is less.

1H54

These are just a few of the advantages of the new self-powered Hydrocrane — and self-power is just one of the big features that is making the Hydrocrane foremost in 1954. See your distributor for complete details.

Bucyrus-Erie Company
South Milwaukee
Wisconsin, U.S.A.

Modern Water Rates

(*Continued from page 98*)

Miscellaneous Regulations

1. Bills are discounted 10% if paid by the 16th of the month rendered.
2. No restrictions on water use, either for lawn sprinkling or air conditioning.
3. No charges made for public or private fire protection.
4. The supply is fluoridated with sodium silicofluoride as a dental-health measure.

General Data

Population served	20,000
Services (32% metered)	4,800
Hydrants	245
Miles of mains	35
Source of supply—wells	
Treatment—chlorine and ammonia	
Storage facilities—2,500,000-gallon open reservoir	
Average demand	3 mgd
Plant capacity	6 mgd

Customer's Costs Per Month

Gallons	*Cubic Feet*	*Costs*
3,000	400	$ .75
5,000	667	1.25
10,000	1,333	2.50

Remarks

1. Rates have remained unchanged since before World War II.
2. The department contributes free water to municipal departments, churches, and similar charitable institutions.
3. Some water revenue is diverted to other city functions.
4. Meters are checked whenever readings indicate reason to doubt accuracy. They are owned by the city and located in the building occupied by the water user.
5. Bills are prepared on an Addressograph billing machine.

A. F. KELLY
Water Superintendent

HAZELTON (PA.) CITY AUTHORITY

Rates Per Month

Size of Meter (in inches)	*Fixed Rate* (minimum charges)
⅝	$ .62
¾	1.12
1	1.68
1½	3.36
2	4.48
3	6.72
4	8.96
6	11.20
8	15.68

Volume of Water (in gallons)	*Metered Rates* (per 1,000 gallons)
First 5,000	$0.45
Next 50,000	.30
Over 55,000	.17

Private Fire-Protection Rates

	Annually
Each hydrant	$31.12

Metered connection:	*Monthly*
4-inch	$11.20
6- "	16.80
8- "	22.40

Miscellaneous Regulations

1. The Authority also uses two sets of flat rates for water users in outlying areas.
2. No restrictions are placed on water use for lawn sprinkling or air conditioning.

General Data

Population served	56,500
Services (81% metered)	10,655
Hydrants	299
Valves	1,031
Miles of mains	159
Supply—570,000,000-gallon impounding reservoir	
Treatment—chlorination	
Storage facilities— 130,000-gallon standpipe 57,000,000-gallon open reservoir	
Average demand	4.4 mgd
Plant capacity	9.8 mgd

Customer's Costs Per Month

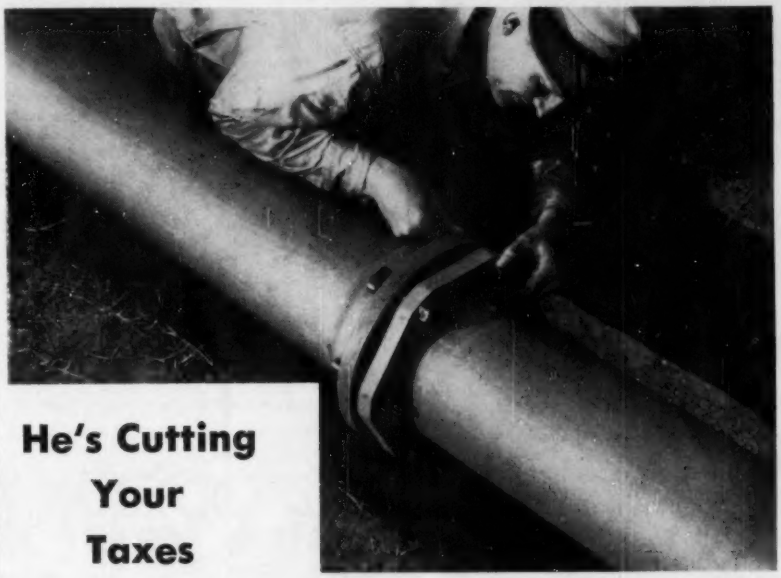
Gallons	*Cubic Feet*	*Costs*
3,000	400	$1.97
5,000	667	2.97
10,000	1,333	4.47

Remarks

1. Present rates represent an increase of 22% in the past five years.
2. The Authority donates no water to other municipal or charitable groups.
3. No water funds are diverted to other municipal uses.
4. The Authority owns the water meters; places them in the building occupied by the user.
5. Bills are prepared without the use of automatic billing machines.

D. E. KELLER
Manager

(*For additional Water Rates see page* 189)



He's Cutting Your Taxes *with* PERMANENT CAST IRON PIPE

This man is laying mechanical joint Cast Iron water pipe. For 100, 200, or even 300 years from now, it will be serving water efficiently to this municipality.

That's the record of thousands of miles of Cast Iron Pipe water mains, some of them in service in Europe when Louis XIV was King of France. Cast Iron Pipe is the No. 1 Tax Saver because it lasts for centuries!

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WOODWARD, ALABAMA

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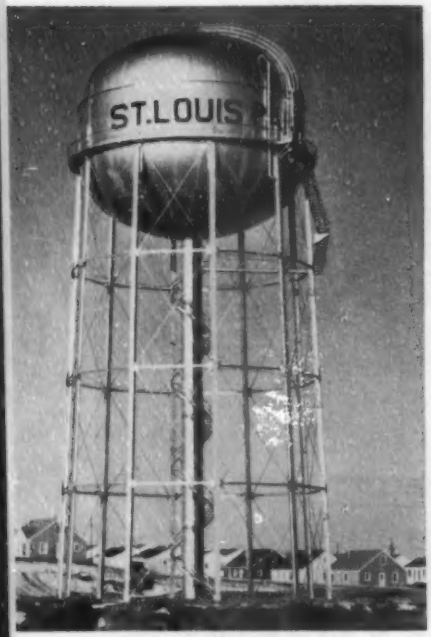
RANGE

PITTSBURGH-DES MOINES

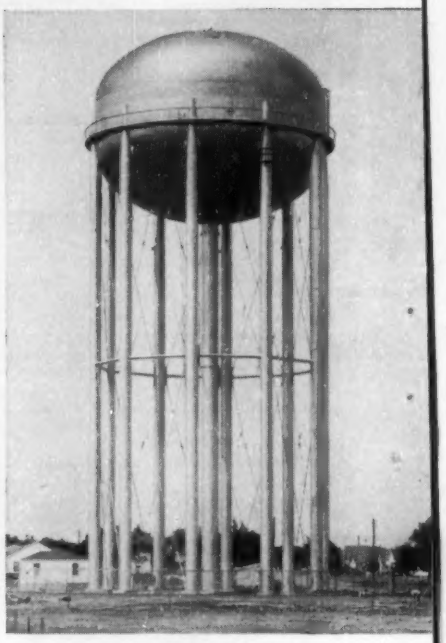
DOUBLE-ELLIPSOIDAL

Elevated Steel Tanks



ST. LOUIS PARK, MINNESOTA
Diameter 65 ft.
Head range 48 ft. 5 ins.
H-column tower, 106 ft.

SANDUSKY, OHIO
Diameter 68 ft.
Head range 42 ft.
H-column tower, 81 ft.



AMARILLO, TEXAS
Diameter 68 ft.
Head range 42 ft.
Tubular column tower, 114 ft.

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SEATTLE . . . . . 524 Lane Street
SANTA CLARA, CAL. . . . 623 Alviso Road

AISC

RICHARDSON, TEXAS

Rates Per Month

Volume of Water (in gallons)	*Metered Charges*
First 1,500 or less	$1.25 (min.
Next 1,000	.50
Excess, per 1,000	.20

Miscellaneous Regulations

1. Bills are discounted 10% when paid by the 10th of the month.
2. No fire-service charges are made.
3. No restrictions on water use for lawn sprinkling or air conditioning.

General Data

Population served 2,200
Services (100% metered) 700
Supply—wells
Characteristics of treatment—chlorination only
Storage facilities—elevated tanks, 150,000 gallons
covered reservoir, 500,000 gallons
Average demand—250,000 gallons daily
Plant capacity ..... 1.1 mgd

Customer's Costs Per Month

Gallons	*Cubic Feet*	*Costs*
3,000	400	$1.95
5,000	667	2.35
10,000	1,333	3.35

Remarks

1. Rates have remained unchanged for several years.
2. Municipality distributes free water to churches.
3. Water funds pay all municipal salaries and meet street-maintenance costs.
4. Department owns all meters and places them at the lot line. No schedule has been established for checking and replacement of meters.
5. Bills are prepared without the use of automatic equipment.

CLARENCE SCHAMB
Water Superintendent

New Edition of the NFPA Handbook of Fire Protection

(Crosby-Fiske-Forster) 11th ed. Edited by Robert S. Moulton. National Fire Protection Association, 60 Batterymarch St., Boston 10, Mass. 1954. 1656 *pp.* $10.50.

With the assistance of more than 100 experts, the NFPA has produced this 11th edition of its Handbook, which presents in compact form the procedures in fire prevention and protection that are accepted as good practice.

Fire-protection engineers, architects, inspectors, and property owners alike will find useful the information on automatic spray sprinklers, flammable liquids and hazardous chemicals, interior finish materials, fire-hazard properties of plastics, new extinguishing agents, thermostats and other automatic fire alarm devices, and other up-to-date fire prevention methods included in the book.

The 11th edition covers many features not found in the 10th edition, published in 1948. There is, for instance, a complete state-by-state summary of fire laws with information as to the subject matter covered and the enforcing agency.

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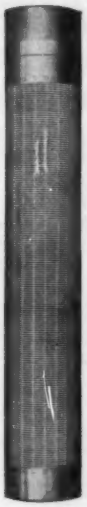
1. Less drawdown.
2. Greater specific capacity.
3. Lowest pumping cost per million gallons of water.



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Housing and Community Improvement Seminar

AN IMPORTANT Regional Seminar on Housing and Community Improvement, sponsored by the United Nations Technical Assistance Administration, in collaboration with the U. N. Economic Commission for Asia and the Far East, was held in New Delhi in January and February.

This seminar, attended by participants from a number of countries in the Asia–Far East region, was held concurrently with the Government of India's International exhibition on Low-Cost Housing.

A model village of 80 homes was one of the features of the Exhibition, complete with health clinic and school, a cooperative store, carpenter's shop and smithy, properly planned streets, adequate water supply, lighting and drainage. The houses, each different, and simply constructed, using cheap or readily available materials, were all designed to cost less than 5,000 rupees (equivalent to little more than $1,000).

Professor Jaqueline Tyrwhitt of the University of Toronto, Director of the Seminar, gave as the objectives of the conference: How to increase the effective use of local building materials; how governments and public institutions can help the poor man build his own house; and the part town planning can play in solving the housing problem.

The Vice-President of India, Dr. Sarvapalli Radhakrishman, who opened the seminar, gave special emphasis to the need for solving the housing problems of the rural population, as well as those of the urban industrial workers.

The three main documents produced by the Seminar were entitled: "Building Techniques, Design and Siting," "Housing and Community Improvement Programs," and "Urban Land Policies." There were two other documents on "Regional Planning" and "The Education of Planners."

Among those attending the seminar, well known to many American planners and municipal officials, were Jacob L. Crane, Housing and Home Finance Agency, Charles Abrams, writer and authority on housing and urban land policy; Professor Frederick Adams, Massachusetts Institute of Technology, and Rafael Pico, Chairman, Puerto Rico Planning Board.

Assistant Secretary-General Georges Picot and Ernest Weissmann, Chief of the Housing and Town and Country Planning Section of the United Nations, concluded the conference by pointing out how the Seminar's conclusions will be translated into recommendations to governments through the Economic Commission for Asia and the Far East and other agencies.

The U. N. is currently providing assistance to five governments in Asia in housing and community improvement, and Technical Assistance experts are helping in the replanning of the capital cities of Burma, Pakistan and Indonesia.

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Servis UTILITY "Gyro-57" BRUSH CUTTER
cuts brush up to 3" in diameter

For cities, highway departments and utility companies. the Servis UTILITY "Gyro-57" Brush Cutter performs clearing work efficiently and economically. Available in Pull Type (illustrated) or 3-pt. Lift Type models, it is equipped with patented multiple stationary and fly-wheel action rotating blades that make a complete 57" wide cut every 2" of travel at 4 mph. Special protective rear skirt makes for safe operation in town. Cuts along pavement edges and in close corners. Very low maintenance cost.

Available in 84" model also.

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New truck design cuts refuse collection costs

Fleet of new 150-inch wheelbase cab-over-engine INTERNATIONAL refuse Trucks, with unique cab design gives midwestern city more efficient, more economical service.

As part of an equipment modernization program, a large midwestern city purchased 50 INTERNATIONAL R-212 cab-over-engine refuse trucks of a new and unusual design.

The special 2-man cab is built to give driver and helper plenty of roomy comfort, yet leaves chassis space for an extra-capacity body, on a 150-inch wheelbase. The 18-yard body features an automatic tailgate and compression unit, automatic loading. Outstanding maneuverability in congested areas and in T-shaped alleys, results in important time savings.

This unique truck design, plus day-in-day-out dependability of INTERNATIONAL *Tough-Job* engineering, cut operating and maintenance costs to a minimum. The improved equipment is credited with helping to give the city more efficient, economical service, with fewer people.

Whether it's refuse collection, or any municipal truck job, you can choose the truck that's exactly right, from INTERNATIONAL, builder of the world's most complete truck line. For more information, see your INTERNATIONAL Truck Dealer or Branch, or write: INTERNATIONAL HARVESTER COMPANY, 180 N. Michigan Avenue, Chicago 1, Illinois.

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Better roads mean a better America

INTERNATIONAL® TRUCKS

"Standard of the Highway"

Cities Get Revenues from Golf Fees

LOCAL GOVERNMENTS have found that golf courses can add to revenues as well as to public enjoyment.

A survey of 62 municipally owned golf courses, cited by the American Municipal Association, disclosed that green fees brought in enough funds to at least meet maintenance expenses. In a number of cases, cities reported that the courses showed a clear profit. The survey was conducted by the National Golf Foundation.

For example, the average income from green fees of 18-hole golf courses in cities of the 50,000 to 100,000 population group was reported to be $23,462, while the average total operating costs were $20,143.

Three main ways of managing city courses are: supervision by the recreation department, regulation by an independent board or commission, or operation directly under the mayor, city manager, or other top administrator.

A common practice among cities is to have a golf professional who manages the course and reports to a public official or supervisory body. Typically, he is allowed to give golf lessons. Frequently, he may also operate concessions in addition to his managerial duties.

A citizens' group of Alameda, Calif., has recommended, however, that a better administrative set-up for municipally owned golf courses would be to divide the functions of the golf professional and manager so that there would be a separate manager. The citizens' group based its proposal on a study it made of public golf courses in 23 California cities.

The number of public golf courses is increasing, according to the American Municipal Association. Figures from the National Golf Foundation show that there are now more than 750 municipally owned courses in the United States.

Every state has at least one city-owned course. In 1953, Texas, with 55, and Illinois, with 52, led the states in number. They were followed by California, with 43; New York, with 42; and Minnesota, with 36. Regionally, the east-north central area of Ohio, Indiana, Illinois, Michigan, and Wisconsin have the most municipal golf courses, 171.

Last year, 14 city-owned courses

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for Catch Basin Cleaning and MANY Other Jobs

Serving Municipalities Since 1918

ONE MAN can clean as many as 30 Basins a day! *Simple operation:* lowers bucket into manhole, raises filled bucket, tops and swings boom, empties bucket into truck.

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Unobstructed flow

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1. Provides full and unobstructed waterway for maximum flow of water from main to nozzle.
2. All internal working parts removable through top of hydrant for periodic inspection.
3. Superintendents find Iowa hydrants easy to keep in "tip-top" operating condition—no special tools required.
4. Main valve holds tight in closed position so that—should hydrant be damaged—no loss of water, or flooding, will occur.
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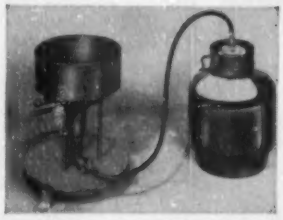

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Now Insto-Gas offers JUMBO, an instant lighting furnace that will melt large quantities of lead, babbitt, zinc and compounds quickly. Only 15 minutes heating time required for 200 pounds of lead.

The broad base of the JUMBO furnace permits use on uneven or soft ground, and a convenient bail handle makes it easy to move on the job. Cast iron melting pots with pouring lips, tilting lugs and tilting hooks are available in 100 and 200 pound capacity.

When a 50 ft. connecting hose is used the JUMBO furnace can give service over a wide area without moving the cylinder. The flame control valve is located on the furnace.

INSTO-GAS TORCHES

Utility Maintenance departments use Insto-Gas torches for soldering, sweating copper pipe fittings, preheating and thawing.

INSTO-GAS EQUIPMENT IS LISTED BY BOTH UNDERWRITERS LABORATORIES AND FACTORY MUTUALS LABORATORIES

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opened for play. One addition to an existing course was completed, and six courses had additions under way.

Popularity of public courses continues on the upswing, as evidenced by the fact that more than 55 municipally owned courses were being planned in 1952, while only one—located on a site selected for a school building—went out of business.

Conflicting Opinions on Using Public Equipment for Private Purposes

THE FREQUENT informal practice in some municipalities of using public equipment and personnel to resurface private driveways in the summer or to remove snow from them in the winter has been tested in a significant New Hampshire decision. The majority opinion of the court recognizes the rule that public property may not be used for private purposes. It draws an analogy, however, to the cases upholding the power of a municipality to lease parts of a municipal building, not needed for municipal purposes, for stores r offices. From these cases it reasons that where the paving and plowing services "are subordinate and incidental to town needs, and the prices charged are sufficient to cover the cost so that no burden falls on taxpayers," the town may perform either or both of the services in question.*

The difficulty with the court's opinion is that it fails to recognize the necessity of public purpose, as pointed out in the dissent of Chief Justice Kenison, as a first requirement in the rendering of a municipal service.† The fact that there is reimbursement of the cost of the service does not convert it from a private purpose to a public purpose. The fact that the town can perform the service economically and efficiently does not make it a public purpose. The fact

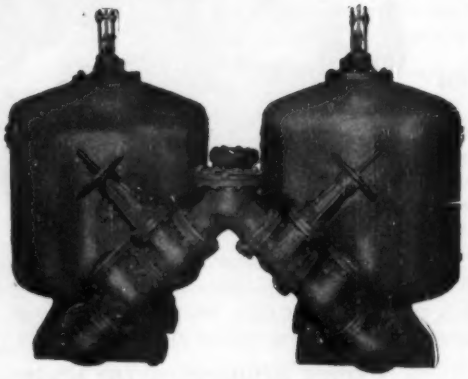
* Clapp v. Town of Jaffrey, 97 N. H. 456, 91 A. (2d) 464 (1952).

† State ex rel. Gordon v. Rhodes, 156 Ohio St. 81, 100 N. E. (2d) 225 (1951); 1951 Annual Surv. Am. L. 257. State v. Gage County, 154 Neb. 822, 49 N. W. (2d) 672 (1951) (county may not sell to general public crushed rock produced by county quarry).

THE MODERN WAY

TO LIFT SEWAGE AND SLUDGE AT TREATMENT PLANTS

USE BLACKBURN-SMITH PNEUMATIC SEWAGE EJECTORS



Duplex Sewage Ejector, showing inlet piping.

PREFERRED by most prominent consulting engineers as **LESS MESSY MORE SANITARY** than centrifugal submerged type sewage ejectors or pumps.

ENDS CLEANING of screens and pumps.

LIFTS STRAIGHT UP, 150 feet capacity, once a minute, without fail.

30 to 500 GPM in both single and twin units against high discharge heads.

Over 60 years service has proved the rugged worth of Blackburn-Smith Ejectors. Yet our today's product is full of exclusive modern features such as: 1. Float and electrical float switch controls. 2. Float and pneumatically controlled snap action valve. 3. Electrode controls.

Any one of the above, with or without Air Receivers.

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BLACKBURN-SMITH MFG. CO. 150 OBSERVER HIGHWAY HOBOKEN, N. J.

that the town has surplus time for its equipment and personnel, does not invest driveway service with a public purpose any more than the use of police squad cars to substitute for taxis would be considered a public purpose. As a practical matter, moreover, the administrative dangers in diverting a municipal road department to the service of individual property owners without any standard to determine who shall receive the service, are so patent as to justify a strict judicial examination of any arrangement of this kind.*

* See Princeton Surveys, Village of South Orange, N. J.: A Study of Municipal Services and Finance, 64 (1943): ". . . . no public street department should do private work, either with or without reimbursement."
—From a chapter on Local Government, by William Miller, in the Annual Survey of American Law, published in the *New York University Law Review* for February 1954.

High School Students Conduct Civic Survey

EXPECTING AN INCREASE of 35,000 to 50,000 persons by 1960 in their city's population, leading citizens of Hollywood, Fla., feel that many of the mistakes and difficulties that have beset other fast-growing communities may be avoided by planning expertly now.

As a beginning, the Chamber of Commerce has appointed a Civic, Business, and Industrial Survey Committee to do the preliminary research work; and one of the important steps in this undertaking — making a civic survey — has been worked out through the cooperation of Myron Ashmore, principal of the South Broward High School. Nearly 400 students of the school composed the "survey team" which will be kept alive from year to year, so that as new students enter the school they can help by serving as a permanent canvassing organization for the entire community.

The purposes of the survey were to obtain a record of the skills of Hollywood residents, so that desirable new industries could be influenced to locate in the city; to obtain an accurate count of Hollywood's year-round and tourist population, and number of eligible voters.

The forms used by the students and a more detailed description of the procedure followed in making the survey may be secured from the Committee of Civic, Business, and Industrial Survey, Chamber of Commerce, Hollywood, Fla.

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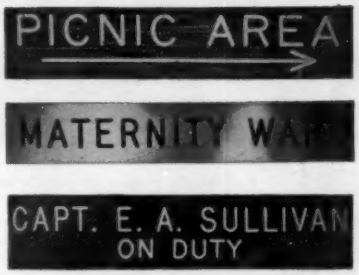

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Brazoria County, Texas Voters Like Their Automatic Voting Machines

"Since Tuesday's Election, Commissioners Court has been receiving fan mail and phone calls, complimenting the court on its decision to follow through by providing modern voting facilities as a substitute for the antiquated method in use over most of the State."

Houston Post
11-10-52

BRAZORIA COUNTY, TEXAS OWNS 49 AUTOMATIC VOTING MACHINES

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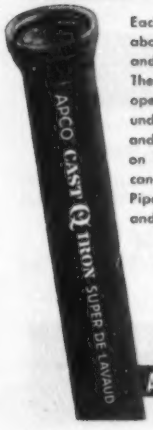
TESTED AND RECORDED



Each length of pipe we manufacture passes through the above hydrostatic test press where it is filled with water and the pressure raised to 500 pounds per square inch. The most common water works pipe is designed for an operating pressure of 150 pounds per square inch. This undergoes the 500 pounds per square inch hydrostatic test and permanent records for each piece of pipe are kept on file for inspection by our customers at all times. You can be assured with Alabama's Super De Lavaud Cast Iron Pipe. In sizes of 3" to 24" in modern long lengths. Bell and Spigot, Mechanical Joint and Flanged Pipe.

General Sales Offices
ANNISTON, ALABAMA
We Invite Inquiries to Our Nearest Sales Office
130 S. Michigan Ave. Chicago, Illinois
350 Fifth Avenue New York 1, New York

ALABAMA PIPE COMPANY
ANNISTON ALABAMA

Sewage Plant Superintendent Wanted

City of York, Pennsylvania, wants Sewage Plant Superintendent. Requirements: Engineering Degree and 5 years of experience with 2 years in responsible charge of operation of activated sludge plant; or high school graduate with 8 years of experience and at least 3 years in responsible charge of activated sludge plant. Must be able to handle operating personnel of plant and have a knowledge of operating costs required in operation of plant.

Apply: City of York, City Hall, York, Pennsylvania; by letter, stating education, experience and salary requested.

Purchasing News

Information for officials interested in equipment and services for the construction, operation and maintenance of municipal utilities

New Machine Expedites Variety of City Jobs

New backhoe attachment, far left, has a 16-foot reach, and digs to a depth of 10½ feet. Center, a Davis Pit-Bull with handy trencher attachment will cut a trench up to 5 feet deep and 8-by 16 inches wide. A ⅝-cubic yard bucket attachment, far right, may be used for loading materials from stockpile, and for digging and grading.

The Davis Pit-Bull, available with 11 attachments and designed for use with any Ford or Ferguson tractor, will handle many municipal construction and maintenance jobs, according to MID-WESTERN INDUSTRIES, INC., 1009 SOUTH WEST ST., WICHITA, KANS.

Hydraulically operated, the Pit-Bull is easy to handle, and offers the operator good visibility and control. It includes a special syncro-mesh transmission between the clutch and standard transmission, and twin hydraulic rear lift arms mounted on the unit's superstructure. This superstructure carries the weight of the Pit-Bull without straining the center of the tractor.

Attachments for the new machine include ⅝-yard bucket, a back-hoe that digs 10½ feet deep, a trencher with a digging depth of 5 feet, and an 8-foot rotary broom with a 60° operating arc for sweeping at angles. Also a 72-inch dozer blade, a swinging crane, a 45-inch roller with 100 psi, a rotary mower which pivots 180° for side mowing, a lift fork with a capacity of 2,500 pounds, a 350-pound hammer, and a 5-foot auger. A plexiglas cab, with a light metal frame, will be furnished as accessory equipment.

All attachments are hydraulically operated, and fit to a close tolerance for easy hook-up. Quick couplers on hydraulic hose connections speed the change-over from one attachment to another.

A detailed description of the new Davis Pit-Bull may be requested directly from the manufacturer, or you may use the Post Card located for your convenience on the colored page in this section. Circle No. 880.

Promotes Sale of Used Equipment

CATERPILLAR TRACTOR CO., PEORIA, ILL., has initiated a new "Bonded Buy" program designed to promote the sale of used equipment, reports Gail E. Spain, vice-president of the company. The program guarantees dealer selected Cat-built equipment against defective parts for 30 days, and also applies to attachments of any make on the machine at the time of purchase.

Two other agreements, of benefit to the customer, which Caterpillar dealers will offer are "Certified Buy" and "Buy and Try." According to Mr. Spain, "Certified Buy" machinery will include machines not qualified for "Bonded Buy" support, but carrying the dealer's written guarantee, with terms to fit the particular machine. "Buy and Try" is a term for on-approval purchases. The machines offered under the "Certified Buy" and "Buy and Try" agreements need not be Cat-built equipment.

Sweeps Close to Curb

Improved to turn "within its own length," the Wilshire model 1000-S sweeps close to curbs, posts, walls, equipment, and sharp corners. The operator is seated on the front of the new power sweeper for full visibility, and directly behind him, within easy reach, is Wilshire's improved, patented Duscon system.

The Duscon unit, with large-size dust bag, saves time by eliminating the necessity for frequent emptying. The large hopper is designed with a new inspection door, so that the operator can easily determine when the hopper is full. Each model 1000-S power sweeper features a self-starter, with horns and

lights available as optional equipment.

Wilshire model 1000-S power sweepers are made in two sizes for sweeping 36- and 48-inch paths. Additional dual-side sweepers increase the sweeping swath to 70 inches.

The WILSHIRE POWER SWEEPER CO., 526 W. CHEVY CHASE DR., GLENDALE 4, CALIF., will furnish full information. Write, or you may use the Post Card on the colored page in this section. Circle No. 907.

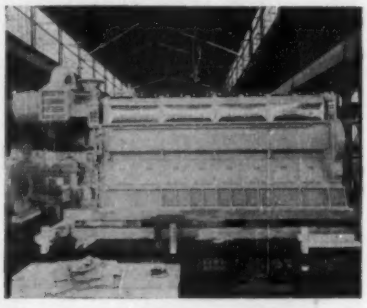
Bethel Power Plant Gets New Diesel Engine

A new power unit will be in service in the Village of Bethel, Ohio, 30 miles southeast of Cincinnati, before the end of this year, according to a recent announcement.

The unit, a 1,765-hp Superior diesel engine, has been purchased by Bethel for use in the community's power plant, and is expected to double the power capacity of the five engines now in operation. It is made by the ENGINE DIV. OF THE NATIONAL SUPPLY CO., SPRINGFIELD, OHIO.

The Superior diesel is a model 65 supercharged, 4-cycle, 8-cylinder engine with 12¾-inch bore and 15-inch stroke, and a running speed of 600 rpm. It will drive an Elliott generator of 125-kw capacity.

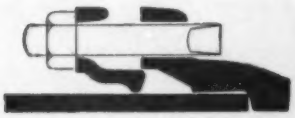
To make room for the model 65, the



original two diesel power units, installed some 26 years ago and having a combined power output of 185 kw, will be removed and a new foundation built. This will leave the plant with three units totaling 1,050 kw capacity to be increased to 2,300 kw. The new diesel is expected to carry the increasing power load of the plant, and two Superior engines will comprise three-fourths of the power capacity of the plant's four diesel units.

Detailed information on Superior diesel engines is available directly from the company, or you may use the Post Card in this section. Circle No. 899.

MAKE JOINTS



WITH A RATCHET WRENCH

McWANE-PACIFIC SUPER DELAVAUD

MECHANICAL JOINT CAST IRON PIPE

Mechanical Joint has rapidly become the leading type joint for cast iron pipe for water or gas. A McWane-Pacific Boltite mechanical joint pipe line can be laid fast by untrained workmen, using only a ratchet wrench to make the joints. No lead pot, no calking tools.

The Mechanical joint is designed on the stuffing box principle—a thick rubber-compound gasket, triangular in cross section, being compressed by a bolted gland or follower ring. The joint is bottle tight, but flexible to allow settlement, expansion or contraction of the pipe line. Mechanical joints are interchangeable with fittings, valves, hydrants and pipe made by all leading manufacturers.

For complete information, wire or write McWANE CAST IRON PIPE COMPANY, Birmingham, Alabama, or PACIFIC STATES CAST IRON PIPE COMPANY, Provo, Utah. (Sales Offices in principal cities.)

McWANE PACIFIC PIPE *Lasts for Centuries*

Choosing a Good Street-Name Sign

Abraham Sprung, one-time engineer for the Edison Company in charge of designing New York City's street-name signs, and current president of Municipal Street Sign Co., Inc., Brooklyn, N. Y., recently completed an interesting report that should aid the city official in the selection of an effective street-name sign. The report covers all types of sign plates, discussing them in terms of their permanence of legibility, and offers detailed information on street-sign frames, posts and fixtures.

In the section headed "General Street Sign Construction," Mr. Sprung lists the principal types of finishes for street-sign plates in order of their relative permanence of legibility. Porcelain enamel, for instance, will remain legible for 30 to 50 years, while baked enamel retains its legibility for 3 to 10 years. He discusses the merits of embossed vs. flat-lettered signs, and the value of using reflectorized sign plates.

To obtain maximum legibility, Mr. Sprung advises use of the largest practical letter size, properly spaced on the largest practical sign plate, using a sat-

isfactory color combination. The most legible specifications, he reports, are found in a sign plate 6 inches wide by a minimum of 18 inches long and a maximum of 36 inches long, with letters at least 4 inches high. Colors with the greatest contrast are black and white.

Other sections of the report deal with the durability of the various types of street-name signs, street-sign frames, and posts and fixtures.

Since the Municipal Street Sign Co., manufactures all types of street-name signs, it is in a position to offer objective advice on the best type of sign for any installation. For a free copy of the new report, *Helpful Information on Street Name Sign Construction*, write directly to MUNICIPAL STREET SIGN CO., INC., 777-9 MEEKER AVE., BROOKLYN 22, N. Y., or use the Post Card on the colored page in this section. Circle No. 904.

Commercial Garbage Grinder

If garbage grinders are good for homes, and the public seems to think so, based on its annual installation rate of 350,000 new units, grinders ought to be useful to the food processing and cannery industry also. THE RIETZ MFG. CO., SANTA ROSA, CALIF., is currently producing a complete line of high-capacity, industrial waste type Disintegrators designed for this application.

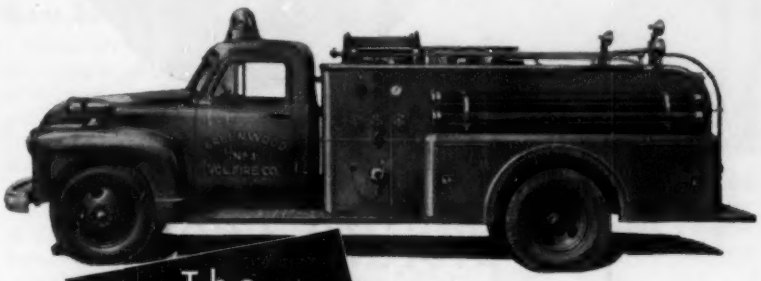
Baltimore, Md., is one of the larger

cities which, by special ordinance, has specifically authorized the use of the Rietz Disintegrators on cannery waste because of their ability to produce a grind which will not clog sewers, either in the plants or in the city sewerage system.

Pacific Biochemical Co., San Jose, Calif., provides a good example of how these Disintegrators aided one firm in recovering much of the waste from canneries and, at the same time, producing valuable byproducts. This firm, using Rietz Disintegrator equipment, produces cattle feed and molasses from the cannery wastes. This waste, formerly disposed of as garbage, is completely utilized in this process.

The Disintegrators can be economically utilized in city market areas or other locations where food wastes must be disposed of in quantity. This method eliminates much of the difficult portion of the wastes that incinerators find hard to burn, or that create insect and rat-breeding problems in other disposal areas.

Literature discussing Rietz industrial waste type Disintegrators is available directly from the company, or take advantage of the Post Card on the colored page in this section. Circle No. 883.



The CHALLENGER needs no help!

The Sharpsville Challenger can be equipped for both high pressure fog and volume. Thus, you can have either at your command, as needed. You can handle a vast majority of your calls with this equipment alone. Other Challenger models are furnished with piston or centrifugal high pressure pumps or with single or multiple stage volume pumps only. Tank size and auxiliary equipment is available to suit your needs.

Write for complete information

Tank Truck Fire Scorches Homes

Fog Hoses Avert Holocaust

A tank truck, loaded with 4000 gallons of cleaning solvent, became a roaring inferno yesterday that burned down power and telephone lines and imperiled nearby homes in an east side residential area. Flames shot as high as 200 feet into the air and billowing clouds of black smoke filled the area.

City firemen, not equipped for fog, fought the blaze for three hours before fog equipment from a neighboring volunteer company was called and finally extinguished the fire.

SHARPSVILLE STEEL FABRICATORS, Inc.
Sharpsville, Pa.
Established 1860 Incorporated 1907

Builders of Service, Crash and Ladder Trucks • Volume and High Pressure Pumpers • Squad and Emergency Cars • Storage Tanks

For lowest per-picture cost

...use the microfilmer that fits your requirements

Recordak Triplex Microfilmer, one of 6 models designed for copying office-size records.

No question about getting your pictures at lowest cost when you go to Recordak.

For Recordak, you see, has 6 different types of microfilmers designed for all requirements, all budgets. Thus, you never have to pay for features or refinements which can't be used profitably in your operation.

If, for example, a Recordak Junior Microfilmer, priced as low as $450, will do your job best—we'll tell you so. That's how we've built our business through the years. And it's one of the important reasons why Recordak customers have been getting more for their microfilming dollar right along.

So if you want to take 500 pictures a day or 25,000 get in touch with Recordak now. You'll find a microfilmer that's just right for you . . . *and you can buy or rent it at surprisingly low cost.* Recordak Corporation (Subsidiary of Eastman Kodak Company), 444 Madison Avenue, New York 22, N. Y. *"Recordak" is a trade-mark*

RECORDAK

(Subsidiary of Eastman Kodak Company)

originator of modern microfilming—and its application to government routines

Cuts Pipe Quickly

. . . it cuts
Clean cut without burr
. . . it bevels
For making weldments
FOR CUTTING SARAN-LINED PIPE—
. . . it grooves
For victaulic joints

Automatic knife pipe cutters are available for cutting, beveling for weldments or grooving for compression type joints, and for cutting Saran-lined pipe. Designed for hand or power use, they are quickly adapted to a variety of operations, an feature a "safety-depth guide" ahead of the cutting edge, eliminating "hogging in" and knife breakage.

Made by BEAVER PIPE TOOLS, INC., 300-500 DANA AVE., WARREN, OHIO, for use with Beaver No. 5, 10, 104, 106, 108, and 112 geared cutters, ⅛- to 12-inch, and for Beaver A, B, and E pipe machines, ½- to 2-inch, the new knife cuts pipe without leaving burrs, and is a practical unit for making weldments and victaulic joints.

For literature discussing the automatic knife pipe cutter, address the manufacturer directly, or use the Post Card in this section. Circle No. 897.

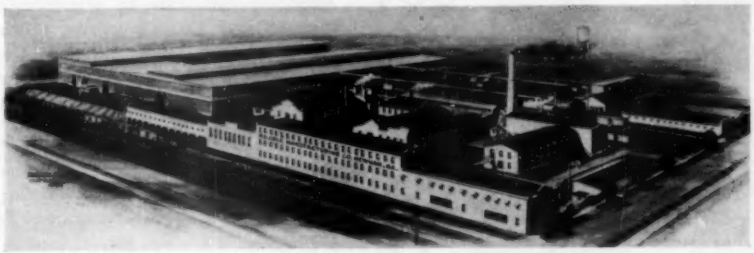
New Backfill Tampers

Models DT-32 and DT-42, new backfill tampers introduced by the DAVEY COMPRESSOR CO., KENT, OHIO, are designed with many interchangeable parts for easy maintenance and repair, and may be frame-mounted to permit simultaneous operation of three tools.

The DT- 32 is 47¼ inches long, weighs 35 pounds, and has a maximum body diameter of 3 inches and a butt diameter of 6 inches. The heavy-duty DT-42, also 47¼ inches long, weighs 45 pounds, with a maximum body diameter of 3¾ inches and a butt diameter of 6 inches.

Davey Compressor Co. will furnish full information on request. Write directly, or you may use the Post Card in this section. Circle No. 895.

Cole Celebrates 100th Birthday

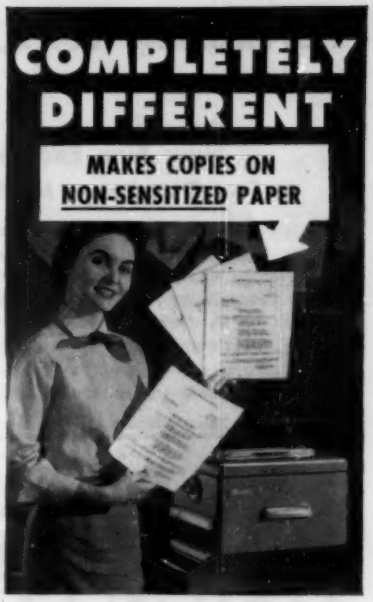


Plant of the R. D. Cole Mfg. Co. as it looks today.

One hundred years ago in May, 1854, R. D. Cole, Sr., secured land and built a modest shop building of frame construction which was to expand through the years as a pioneer of Georgia industry—and to afford to R. D. Cole Mfg. Co., of Newnan, the high privilege of celebrating its 100th anniversary in 1954. This privilege was made possible by the loyalty of four generations of workers and the friendship of four generations of customers, together with the phenomenal growth of Georgia and the South.

Emphasis has always been laid upon superior craftsmanship, and the quality of Cole products has been the incentive rather than volume of business. Those who have contributed to the progress of the company have never been beset with an ambition to be the biggest, but always to produce products which were of superior workmanship.

Officers of the R. D. Cole Mfg. Co. include E. G. Cole, who succeeded his father as president; Bryan Blackburn, treasurer; E. G. Cole, Jr., executive vice-president; and Duke Cole Blackburn, vice-president.



The sensational Kodak Verifax Printer—distributed nationally by Recordak—lets you make 3 copies of a letter in 1 minute for less than 4¢ each.

A revolutionary discovery makes this speed and economy possible. You copy your office records on non-sensitized paper—instead of specially treated papers; and you get 3 or more copies—instead of one—from each sheet of Verifax matrix paper. Also, you expose your original *only once!*

Anyone in your office can operate the Verifax Printer after a few minutes' instruction. And under your present room lighting—*another plus.*

Your savings in retyping costs alone will soon exceed the surprisingly low price—$240.

Verifax copying saves wherever there's paper work

. . . see for yourself without the slightest obligation. Prompt service from any one of Recordak's 29 offices.

MAIL COUPON TODAY

Recordak Corporation
(Subsidiary of Eastman Kodak Company)
444 Madison Avenue
New York 22, N. Y.

Gentlemen: Please send me free Verifax folder and address of nearest Recordak office.

R-25

Name_____

Company_____

Address_____

City_____ State_____

RECORDAK

Price quoted is subject to change without notice.

New Fire Engines For Dearborn, Mich.

A fleet of six new fire engines will go into operation in the City of Dearborn, Mich., soon, including four 750-gallon pumpers and two ladder trucks, all built on Ford chassis. According to Orville L. Hubbard, mayor of Dearborn, the pumpers are designed to combat local blazes faster and more efficiently.

Four light-weight 750-gallon pumpers feature fast, low-cost operation.

Lightweight, they combine speed with simple, low-cost operation.

The 5-man crew cab of the 750-gallon pumper was built by the Proctor and Keefe Body Co., 7741 Dix Ave., Detroit, Mich., and the fire apparatus was installed by Howe Fire Apparatus Co., of Anderson, Ind. Each unit carries 1,600 feet of hose, and is equipped with the latest equipment and accessories. The pumpers were designed by Dearborn's fire chief, Frank J. Gilligan, and were built at a cost of $13,000 each.

For complete information on Ford fire equipment, write the FORD MOTOR CO., DEARBORN, MICH., or use the Post Card on the colored page in this section. Circle No. 887.

REALOCK FENCE

keeps your guard up

With a Realock Fence enclosing your buildings and grounds, your guard is always up against the risks of unauthorized entry. Realock Fence means ever-present protection...saves you money by eliminating need for extra watchmen

...protects against potential loss from burglary and vandalism.

Consult your classified telephone directory for nearest sales office or write to any of our three division offices for free estimate or catalog.

BRANCHES IN ALL KEY CITIES

THE COLORADO FUEL AND IRON CORPORATION
Denver and Oakland
WICKWIRE SPENCER STEEL DIVISION
Buffalo, New York

2053

REALOCK FENCE
THE COLORADO FUEL AND IRON CORPORATION
CF&I

New Offices for McCarty Company

Merging with existing organizations, THE MCCARTY CO., advertising agency, has established offices in New York and Dallas, according to Terrell T. McCarty, president of the firm. The new offices are part of an expansion program aimed at offering broader facilities on a nation-wide scale, and will supplement the services of McCarty offices in Los Angeles, Chicago, and San Francisco.

In New York, negotiations have been completed under the supervision of Hiram E. Cassidy, executive vice-president, for the merger of Laughlin-Wilson-Baxter & Persons, Inc., to be known as The McCarty Company Advertising Inc., of New York. Howard Persons, president of eastern operations, assisted by Robert Holley, vice-president, will remain in charge of the New York offices, newly located at 430 Park Ave.

In Dallas, the Russ Jurgens Advertising Agency has merged with The McCarty Co., and will operate as The McCarty Company of Texas, Inc. Russ Jurgens will head the new operation

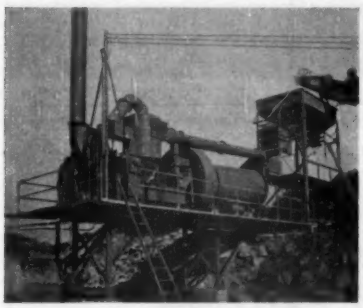
as vice-president and general manager.

H. L. Bauer has been appointed vice-president and general manager, and Charles McKinney, associate manager of McCarty's Chicago office, which is soon to be enlarged.

Other appointments include Clarence G. Davenport, vice-president in charge of the Los Angeles office, George E. Church, associate manager, San Francisco office; Edward L. Murray, production manager, Chicago office; and M. N. Montgomery, production manager, Dallas office.

Get Low-Cost Asphalt Mix in Less Time

A 2,000-pound capacity electric asphalt plant, easy-to-operate with central push button controls, produces a production run or a single batch quickly and efficiently. The unit will produce



all types of asphalt mix for street construction and maintenance, and features controlled batch aggregate drying.

Universal Engineering Corp., a subsidiary of the Pettibone Mulliken Corp., makes the new Speed Batch asphalt plant with indicator lights and signals. The dryer, pugmill, dust collector, and all power and controls for their operation, are combined on one frame as a unit. This unit is further equipped with a removable operator's platform, lifting hooks, and a folding stack for ease of transport and erection.

Capacity of the new asphalt plant ranges from 25 to 40 tons per hour, depending upon the moisture content of feed material and the type of mix. The Speed Batch is also available as a portable unit, mounted on a steel gooseneck truck with pneumatic tires.

Additional data will be furnished by the Universal Engineering Corp., Cedar Rapids, Iowa, or you may use the Post Card on the colored page in this section. Circle No. 890.

New West Coast Factory for Foxboro

The Foxboro Co., Foxboro, Mass., reports the construction of a new branch factory at 399 Preda St., San Leandro, Calif., to be completed late this summer. This new 8,400 square foot building will more than double the production area of the firm's San Francisco shop, providing increased facilities for the manufacture, sales, and service of industrial instruments for process measurement and control.

According to B. H. Bristol, president of Foxboro, the West Coast construction is part of an expansion program that began with the opening of a new factory in Dallas, Texas. A third Foxboro factory, in Pittsburgh, Pa., will be completed in the near future.

"BUFFALO" Municipal Castings come in every size and style!

No matter what your needs may be, you're pretty sure to find a "Buffalo" casting to serve the purpose, whether it be in valve, service or roadway boxes, meter boxes, manhole rings & covers, or other municipal castings.

If you need special castings, either gray iron or non-ferrous, let us give you a quotation.

3 pc. screw type 5¼" valve box

2 pc. sliding type adj. 5¼" valve box

2½" water or gas ext. service box

Extra Heavy Traffic 2½" or 3" service box

All the new designs of "Buffalo" boxes are interchangeable with older "Buffalo" boxes—another big advantage of always insisting on "Buffalo" municipal boxes and castings.

Write or wire Dept. J for Bulletin M11

BUFFALO PIPE & FOUNDRY CORP.
BOX 55—STATION B DE. 6764 BUFFALO, N. Y.

FAST • VERSATILE • ECONOMICAL

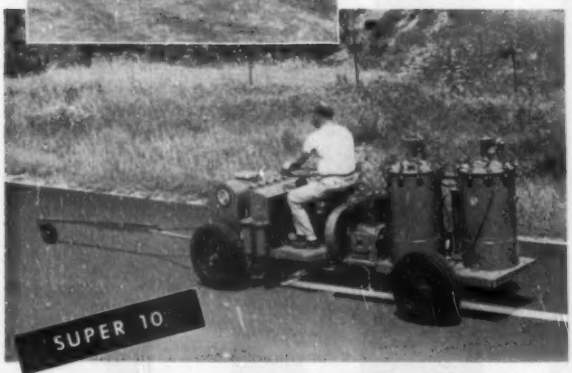
M B LINE MARKERS

MODEL 6-18

Here's a low-priced line striper for regular or reflective painting that offers more exclusive features than any other marker in its class. Gives you built-in riding trailer with foot and parking brake; easy steering in circles, curves or straight line; capable of painting solid or intermittent line; the M-B Jet Tube assures sharp lines and the spray gun can be mounted outside of wheel tread for close work. Has 18 gallon capacity, 6 HP engine with travel speeds of 3 to 5 mph. Transport trailer and all special accessories available.

MODEL 16

One-man operated all-around utility marker. Self propelled and has 18 to 36-gallon capacity. (One or two colors). Lays double solid lines 3" to 6" wide; intermittent attachment available. Bead dispenser available for reflectorizing. Has two speeds forward and one reverse. Special, tilt bed general utility trailer available for long hauls.



SUPER 10

The big marker for all your highway marking jobs. Lays one, two, or three lines, 2 colors, solid or intermittent. Bead reflectorizing attachment available. Has wheel type caster guide. 30 to 120 gallon capacity. 13.3 HP engine with travel speeds up to 10 MPH. Three speeds forward and one reverse. Special design transport trailer available.

Complete line of markers from 11.2 gallons to 1,000 gallon capacity available.

M B CORPORATION
FORMERLY
MEILI-BLUMBERG CORP.
NEW HOLSTEIN, WISCONSIN

A Practical Sewage Plant for the Small Community -The SPIRAGESTER

The Spiragester is the kind of little city sewage treatment plant that practical men appreciate.

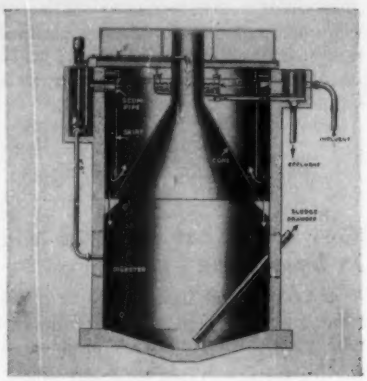
. . . **It combines** primary settling with the digester in a simple, compact structure (see drawing below).

. . . **It is simple** to build, flexible to operate, and an efficient performer.

. . . **It represents** "blue chip" long-term investment. You don't outgrow a Spiragester. You simply turn it into a digester and install separately one of our fast-acting Spira-flo Clarifiers and your problems of increased flows are solved.

The Spiragester writes a record that speaks for itself. Let us show it to you.

If you have a larger plant troubled with overload problems, write us about them also. We have the men and equipment to give you the answer.



WRITE TODAY FOR BULLETIN 124

LAKESIDE ENGINEERING CORPORATION
222 W. Adams St. Chicago 6, Ill.

ANTHRAFILT

(Reg. U. S. Pat. Off.)

A Filter Medium For All Purposes

Has outstanding advantages over sand and quartz media:

1. Length of filter runs doubled
2. Only about one-half as much wash water required
3. Less coating, caking or balling with mud, lime iron or manganese
4. Filters out of service less because of shorter wash cycle
5. Better removal of bacteria, micro-organic matter, taste and odor
6. Increased filter output with better quality effluent
7. Not just the top portion, but the entire bed, aids in filtering
8. Can be used in all types of filters using a filter medium
9. A perfect supporting medium for synthetic resins
10. An ideal filter medium for industrial acid and alkaline solutions
11. Decidedly advantageous for removal of fibrous material as found in swimming pool filters

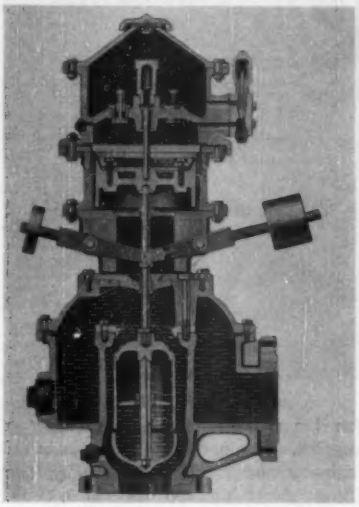
Additional information, recommendations and quotations furnished upon request by

PALMER FILTER EQUIPMENT COMPANY
822 E. 8th St. Erie, Pa.
Engineers and Sales Agents

REPRESENTING —

ANTHRACITE EQUIPMENT CORP.
Anthracite Institute Bldg., Wilkes-Barre, Pa.

Guards Pipe Lines from Water Hammer



Protect water pipe from the damaging effects of surge and water hammer, by controlling the speed line closure with the Type CCAV. This controlled closing valve vents air and, when necessary, discharges water to prevent damage. It also admits air, protecting the pipe against collapse from line breaks.

Shown here is a cross-sectional view illustrating the construction of the air inlet and exhaust valve, enclosed by and surmounted with a cast-iron shell. This shell has a suitable outlet to lead off any overflow water. Mounted on the valve shell is a valve retarding unit, containing a piston equipped with a controller type rubber diaphragm which seals in a quantity of non-freezing valve and retarding liquid.

In the dividing metal web are four spring-loaded poppet valves, held tightly closed by the upward pressure of the liquid. The only access from the lower portion to the upper portion of the chamber is through the adjustable needle valve.

As a line is being filled with water, air contained within the line is discharged, and when the process is completed, the liquid enters the valve casing and floats the valve to its seat.

The new Type CCAV valve is furnished with a 4-inch diameter flanged inlet opening, made for bolting directly to a 4-inch standard flanged fitting in the pipe line.

Write the SIMPLEX VALVE & METER CO., 6789 UPLAND ST., PHILADELPHIA 42, PA., for complete information, or you may use the Post Card on the colored page in this section. Circle No. 871.

TOWER ALL STEEL

Swimming Pools

Tower Swim Pools for outdoor or indoor installation are modern in design and scientifically constructed. A positive guarantee is provided against leaking, cracking or structural defect — the first cost is in effect a final cost. Most important — only an occasional coat of paint is required to maintain a Tower All Steel Pool.

HOTELS, SCHOOLS, PLAYGROUNDS, INSTITUTIONS, COUNTRY CLUBS.

Consult us today!

TOWER IRON WORKS

60 BORDEN ST., PROVIDENCE 3, R. I.

Please send information on your New ALL STEEL Swimming Pools.

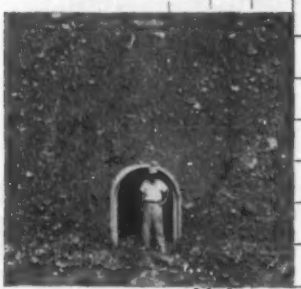
Name

Street and No.

City and State

flatten
cost curves
with UNIVERSAL
Flat-base pipe

conduits



highways

industry

Pre-cast concrete pipe saves up to 30% over built-in-place methods. Easy installation. Up to 100 feet of UNIVERSAL Flat-base pipe can be laid and covered in one day!

Built for heavy duty, low maintenance. Flatten your cost curves . . . specify UNIVERSAL Flat-base concrete pipe. Write . . . we'll tell you more.

THE UNIVERSAL CONCRETE PIPE COMPANY
297 SOUTH HIGH STREET
COLUMBUS 15, OHIO
A subsidiary of the American-Marietta Co.

Purchasing News

Overhead Sign Supports

Overhead signs that can be read at a glance, day or night, are an important safety factor on today's intricately designed urban expressway systems. This is particularly true when approaching larger cities, and where multiple intersections are involved.

A simple, efficient way to mount these signs safely and adequately, is to use the new Monotube overhead sign support, developed with the help of highway and traffic engineers by THE UNION METAL MFG. CO., CANTON 5, OHIO.

These sturdy supports feature minimum foundation requirements, and are easy to install and replace. The upright poles as well as the cross beam segments are constructed of heavy-gauge

CLT

Tax Equalization Appraisals

Fifteen years of unduplicated experience of producing highest quality appraisals for tax equalization purposes.

Client list and brochure upon request.

COLE-LAYER-TRUMBLE COMPANY
11 West Monument Ave. • Dayton 2, Ohio
PROVABLE APPRAISALS SINCE 1938

DISTRICT OFFICES:
172 Clinton Avenue, New Rochelle, New York
207 Investment Building, Pittsburgh, Pennsylvania
123 N. Poplar Street, Charlotte, North Carolina
415 Congress Street, Portland, Maine
84 Peachtree Street, N.W., Atlanta, Georgia

steel in one piece, uniformly tapered.

The sign supports are designed on the basis of a maximum sign area of 100 square feet, and a weight of 500 pounds applied at the center of the beam, and meet the heavy loading district requirements of the National Electrical Safety Code. Span lengths varying from 31 to 101 feet are available. The supporting poles are 18 feet, 6 inches long, with an anchor base.

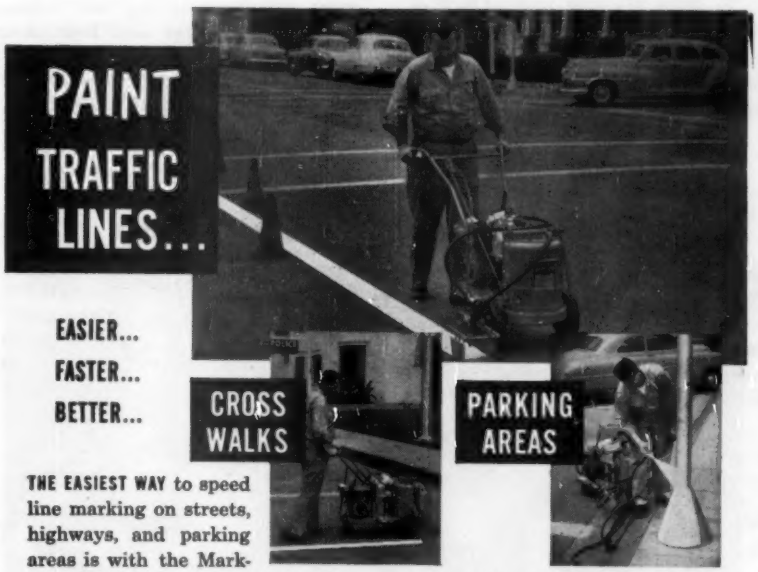
Monotube overhead sign supports not only carry signs for traffic direction, but may be used for quick, positive identification of cities and towns as well. They are fully described in *Folder TR-100*, along with engineering and dimensional data, and photos of actual installations. For your copy, write the company directly, or you may use the Post Card on the colored page in this section. Circle No. 872.

John Sheehan Sales Manager of Chapman Valve

THE CHAPMAN VALVE MFG. CO., INDIAN ORCHARD, MASS., announces the appointment of John H. Sheehan as sales manager in charge of the firm's Water Works Division.

A native of Springfield, Ill., Mr. Sheehan was educated at the Lewis Institute in Chicago, where he received a degree in structural engineering. Before joining Chapman Valve, he spent a number of years in the Engineering-Design Division of the City of Chicago, with the Turner Construction Co., and with B. D. Simons Industrial Engineers, operating from the Chicago area. He later became associated with the Automatic Cone Valve Co. of Matoon, Ill.

In 1933 The Chapman Valve Mfg. Co. purchased the Automatic Cone Valve Co., transferring Mr. Sheehan to the company's Indian Orchard plant. Since 1943 he has served as assistant sales manager of the company's Water Works Division.



THE EASIEST WAY to speed line marking on streets, highways, and parking areas is with the Mark-Rite Econo-Liner. It is easy to guide, easy to operate, easy to refill and easy to clean. Adjustable shields produce sharp, clear lines in any width from 2" to 6". Has a 5 gal. cap. tank. Free-floating paint guides follow the contours on brick, black top, concrete or any other surface. The Econo-Liner is simple to convert into a portable spray rig.

SEND FOR THIS CATALOG NOW! Get complete information about Econo-Liner. Write today!

UNIVERSAL MANUFACTURING & SALES CO.
5211 Pacific Blvd., Huntington Park 2, Calif.

Mark-Rite LINE MARKERS

WHY USE OUR
Nationwide
Pipe Cleaning Service

Fast, efficient pipe and sewer cleaning is a job for experts and up-to-date equipment. It's a big business . . . so big that it's impractical for municipalities, industries and local contractors to invest in the costly but necessary equipment and personnel required to do a *thorough* pipe cleaning job.

NATIONAL POWER RODDING CORPORATION has both men and machines—highly trained crews (all specialists) and modern power machinery. Now, clogged and partially clogged lines can be cleaned in less than half the usual time . . . AND AT REASONABLE PRICES!

WE OPERATE ANYWHERE, ANYTIME . . .
SATISFACTION GUARANTEED!

Send coupon below for complete information.

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Power
Rodding
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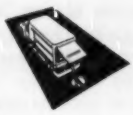


4600 W. Madison St. • Chicago 44, Illinois
MAnsfield 6-8366

NATIONAL POWER RODDING CORP.
Dept. A, 4600 W. Madison St.,
Chicago 44, Ill.

Please send booklet "NOW REBORE"

Name_____
Position_____
Address_____
City_____ Zone____ State_____

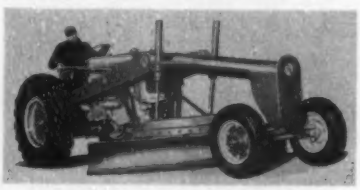
Pipe for Water, Sewage Plants

Easily handled, lightweight, spiral-welded steel pipe has been demonstrating its effectiveness in many municipal plant duties, according to the NAYLOR PIPE CO., 1230 E. 92nd ST., CHICAGO 19, ILL.

In water plants, it has proved useful in filtration piping, and for handling water under high and low pressures. In sewage-treatment plants, this pipe is serving on sludge lines, as a sewage conduit, and as a conduit for air lines. In diesel plants, it is employed for exhaust and intake lines, for gas piping and manifolds, and for circulating water piping.

The Naylor Pipe Co. has recently published a new bulletin on this lightweight pipe. For your copy, address the manufacturer directly, or you may use the Post Card on the colored page in this section. Circle No. 908.

Small-Size Grader



Similar in operation to larger machines, this small, low-cost grader is easier to handle and maintain, and may be built into or attached to a 30-hp Minneapolis-Moline RTI tractor. It is a practical unit for grading and maintaining city streets, and may be effectively utilized on a variety of light construction jobs.

The new grader has a 10-foot blade, and provides four speeds forward and one reverse. It is kept in proper alignment by a sturdy tubular frame designed to resist twists and shocks. The engine, located between the rear wheels and the blade, adds its weight to both traction and blade pressure.

Each grader is equipped with large, 14 x 24, rear tires, and features a hydraulic circle turn as optional equipment. A full line of attachments, including a snow plow, shovel, berm leveler, bulldozer, and scarifier are also available.

Get complete details by writing directly to THE M-B CORP., NEW HOLSTEIN, WIS., or you may use the Post Card in this section. Circle No. 893.

New Firefighter Combines High-Pressure Fog and Volume Pumps

The most difficult fire is quickly extinguished with the new Bean HPV combination firefighter, consisting of a high-pressure fog system and volume pump mounted on the same truck chassis. The pumps operate together or separately, giving your fire truck two lines of fast-striking high-pressure fog, and three or four lines of powerful volume streams.

The tank of the HPV holds 500 gallons of water which is adequate for most fires. As John Bean high-pressure fog, this water has its heat absorption value increased by a 10 to 1 ratio, furnishing the equivalent of 5,000 gallons of water right on the truck.

The high-pressure pump develops 850 pounds at the pump for a nozzle pressure of 650 psi at 60 gallons per minute. Depending upon the size of the engine, the volume pump can deliver 500, 600, or 750 gallons per minute at 150 pounds pump pressure.

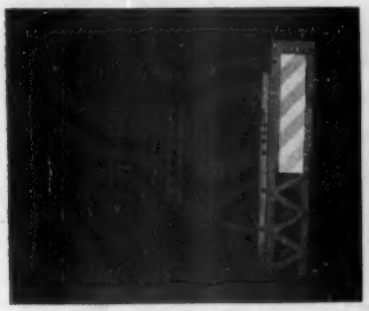
In addition to the combination unit, the JOHN BEAN DIV. OF FOOD MACHINERY AND CHEMICAL CORP., LANSING 4, MICH., offers a straight high-pressure fog firefighter, and a conventional volume pumper. This apparatus can be mounted on most commercial chassis with a cab to axle dimension of 102 to 105 inches.

A complete description of the new HPV high-pressure fog and volume firefighter, and other John Bean units, is available from the manufacturer. Write directly, or use the Post Card in this section. Circle No. 889.

New Police Truck for Colorado Springs

The "Black Maria," an International R-110 panel truck, will accommodate from "10 to 12 customers" at a time, according to the police department of Colorado Springs, Colo. Made by International Harvester Co., Chicago 1, Ill., it features wall seats, a rear platform, and a bullet-proof plate behind the driver. The rear compartment is designed to prevent prisoners from concealing any articles.

Bridge-End Marker Glows by Night



This red-and-silver marker for bridge-ends and culvert abutments is faced with a "Scotchlite" brand reflective sheeting that reflects brightly at night up to ½-mile away. Regardless of the angle of approach, the diagonally-striped unit attached directly to the bridge-end, is clearly visible to the motorist—even in heavy rain. It is made by the MINNESOTA MINING AND MFG. CO., ST. PAUL 6, MINN.

Measuring 8- x 36 inches, the new marker is made of 61S-T6 alloy in .081 gauge aluminum. Since aluminum, under ordinary conditions, won't corrode and the smooth-surface reflective sheeting cleans itself, maintenance is reduced to a minimum.

A complete description of the new bridge-end marker may be requested directly from the manufacturer, or you may use the Post Card on the colored page in this section. Circle No. 877.

Plastic Pipe for Municipal Water Systems

A light-weight plastic pipe has been added to the line of industrial rubber products available from the HAMILTON RUBBER CORP., TRENTON, N. J. Recommended for municipal water systems and irrigation systems, it is made of virgin polethylene, compounded with non-toxic ingredients, and is reported completely immune to rot, rust, and electrolytic corrosion.

Hamilton plastic pipe is furnished in sizes ranging from ½- to 1½-inches, with calculated burst pressures ranging from 450 pounds psi on the ½-inch to 200 pounds psi on the 1½-inch.

Further information on this flexible pipe is obtainable from the manufacturer. Write directly, or you may use the Post Card on the colored page in this section. Circle No. 884.

Cut refuse disposal costs 7 ways with PAX-ALLS!

1 Lower first cost
One Pax-all does the work of 2 to 3 open trucks . . . costs up to 20% less than other compaction units.

2 Lower chassis cost
Pax-all mounts on thrifty, maneuverable 84" C/A trucks.

3 Lower installation cost
No fish plating or front end weighting needed with Pax-all.

4 Lower operating cost
Lighter chassis means extra savings on license, taxes, gas, tires, etc.

5 Lower labor cost
Automatic cram-packing gets bigger pay loads, with fewer man-hours, fewer trips to dump.

6 Lower maintenance cost
Pax-all is the simplest loader built . . . easily serviced by any mechanic.

7 Lower accident cost
Low bucket loading practically eliminates hernias, bad falls, lost time, etc.

If your community has been putting up with inefficient, unsanitary garbage disposal because you *thought* modern automatic loaders were too expensive, you're in for a *pleasant surprise.* Records prove St. Paul PAX-ALL is *the most economical method of refuse disposal available today.* In fact, savings with PAX-ALL are so great that most communities are able to finance this sanitary automatic service immediately — *without any increase in present operating budgets!* Investigate PAX-ALL economy for your community today.

MAIL COUPON

St. Paul HYDRAULIC
Refuse Loaders • Hoists & Dump Bodies
Truck Patrols • Elevating End Gates

ST. PAUL HYDRAULIC HOIST
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36125 Main St., WAYNE, MICH.
☐ Send free literature on PAX-ALL Refuse Loaders.
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Title _____
Address _____
City _____ State _____
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Catalite
REFLECTIVE
COMPOUND
✓ mileage proved
✓ dries in 6 minutes
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Catalite
REFLECTIVE
COMPOUND
(Beads and Paint)
PREMIX REFLECTIVE TRAFFIC PAINT AT ITS BEST . .
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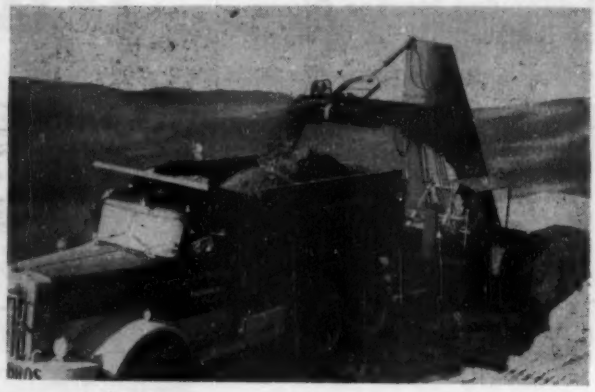
EASILY APPLIED
—no bead dispenser necessary

See your nearest CATAPHOTE dealer—or, write
Cataphote CORPORATION
TOLEDO 10, OHIO

Purchasing News

Swivel Discharge Loader

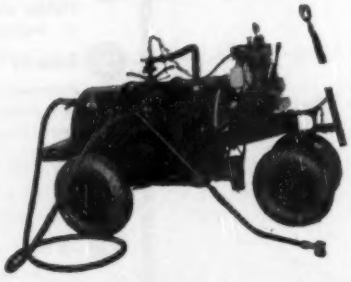


This heavy-duty bucket loader, with hydraulically operated swivel discharge conveyor, comes in two models; the P-11B mounted on rubber tires, and the crawler-mounted Q-11B. The discharge conveyor turns a full 180°, discharges at heights of over 14 feet, and has a reach of over 11 feet, permitting quick, easy loading of large trucks with sideboards.

With the discharge conveyor swinging 90° to the right or left of the front discharge point, it is no longer necessary to "spot" trucks in a fixed loading location. The conveyor turns, lowers or raises independently of the bucket boom, and the truck is able to stay in position as the loader moves into the material. As loading is completed, the operator shifts position from one truck to another.

Both models are made by N. P. Nelson Iron Works, Inc., Clifton, N. J. Write the company directly, or you may use the Post Card on the colored page in this section. Circle No. 898.

PAVE DRIVEWAYS PATCH HIGHWAYS
BUILD PARKING AREAS & TENNIS COURTS
by penetration



"direct from the shipping drum"

MATERIALS HANDLED: Bituminous Binders: asphalt emulsions, light tars and cutbacks; Concrete Curing; Waterproofing; Weed Killers; Cleaning Solvents; Oil Base Paints. Tempering Tank (for heating heavier tars and asphalts).

ADVANTAGES: 1. Lower handling costs, 2. Faster, cleaner, more economical application, 3. larger daily thru-put, 4. easier, SAFER operation, 5. lower repair and maintenance expense.

TARRANT MFG. CO.
EAST AVE. SARATOGA SPRINGS, N. Y.

25 New Fire Pumpers for New York City

One of 25 high-pressure pumpers delivered to the City of New York.

Twenty-five Mack Type 19 special high-pressure pumpers were delivered to the New York City Fire Department recently, for duty in the downtown part of Manhattan, below 34th Street. These heavy-duty firefighters have been assigned to all of the engine companies in that area covered by the Manhattan special fire-protection system.

Equipped with 4-stage centrifugal pumps arranged for operating in parallel, series, or a combination of series and parallel, the pumpers offer three different ranges to handle the unusual capacity and pressure required by the area's high property values and variety of structures.

Drafting from the rivers, the pumps are rated at 1,000 gpm at 160 psi; 500 gpm at 320 psi; 400 gpm at 400 psi; and 250 gpm at 600 psi. These rated capacities are, of course, greatly exceeded when operating from hydrants of the special fire-protection mains.

Each new pumper is equipped with a radio, and is powered by a Mack 707 Thermodyne engine which develops high horsepower at moderate engine speeds. Turret nozzles, 2,000 gpm, are directly connected to the pumps, and the hose bodies carry both 2½- and 3-inch hose.

Detailed literature on the Type 19 high-pressure pumper is obtainable from MACK TRUCKS, INC., 350 FIFTH AVE., NEW YORK 1, N. Y., or use the Post Card on the colored page in this section. Circle No. 901.

LEADITE

The Pioneer Self Caulking Material for C.I. Pipe

Thousands of miles are—

Jointed with

LEADITE

for Satisfaction and Long Life

because Leadite makes a good, tight joint that improves with age . . . and in addition, saves on installation costs. Write for Literature.

THE LEADITE COMPANY

Girard Trust Co., Bldg., Philadelphia 2, Pa.

No Caulking

. . . with this

F & E INCINERATOR STOKER

Patents Pending

F&E Incinerator Stokers apply not only to new incinerator plants, but to many now existing furnaces. Results—up to 50% increased burning capacity; big reduction in labor; big reduction in maintenance.

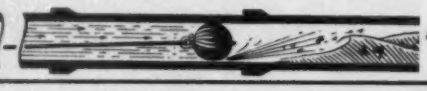
F&E FLYNN & EMRICH CO.

301 N. Holliday St. ★ Baltimore 2, Maryland

Periodic Cleaning with the
WAYNE BALL

Noisy Manholes Silenced with Sidu Rubber Manhole Cushions

REDUCES STOPPAGES up to 90% by removal of Sand, Gravel, Rocks, Bricks, Mud, Grease, Roots, etc. Controls Sulphide Generation and Odors. Maintains Stability and Assists Materially in the Control of H_2S Gas.



No Machines, Cables, Augers and Rods Developed by Sewer Men for Sewer Men

THE SIDU COMPANY

Sewer Cleaning Tools ***Rubber Manhole Cushions***

BOX 3537 • LONG BEACH, CALIFORNIA

attention civil defense chiefs!

MODERNIZE YOUR

WARNING SIGNAL SYSTEM

with this NEW extra-compact powerful

BENJAMIN SIREN!

This new siren is especially designed for modern multiple-signal installations, which overcome problems of atmospheric conditions, wind direction and industrial din. A small-yet-powerful high-torque, 10,000 r.p.m. motor and precision-machined housing makes possible extra-compact design. Famous Benjamin built-like-a-battleship construction prevents moisture from entering and assures long, trouble-free operation.

TYPICAL APPLICATIONS OF THE BENJAMIN SIREN

for civil defense

for boiler alarms

for plant protection

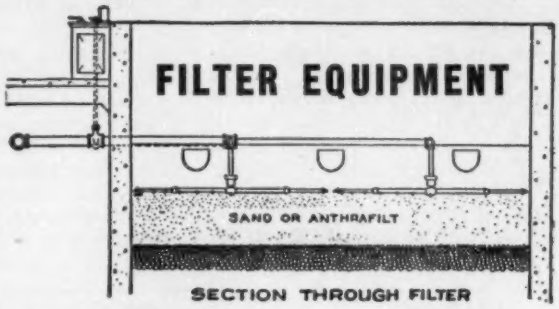
It's the 20th Century Pony Express!

FREE SIGNAL BOOK! Send for your copy of this most complete book on signaling! Benjamin Electric Mfg. Co., Dept. AC, Des Plaines, Ill.

609 CD

PALMER

FILTER EQUIPMENT



SECTION THROUGH FILTER

Filter Bed Agitator Advantages

- Requires an average of 40% less wash water
- Eliminates mud balls
- Prevents cracking and shrinking of the beds
- Produces "new" sand after short period of normal operation
- Enables you to increase filter runs up to 50%

Anthrafilt Advantages

- Doubles the length of filter runs attainable with sand and quartz media
- Requires one-half as much wash water
- Filters are out of service less because of the shorter wash cycle
- Coating, caking or balling with mud, lime, iron or manganese reduced to the minimum

Write for Circular

PALMER FILTER EQUIPMENT CO.

P. O. BOX 1655, ERIE, PA.

Is Your City Up-to-Date in Its Operation Methods?

THE AMERICAN CITY
470 Fourth Ave., New York 16, N. Y.

Please send me ..... copy (copies) of your Municipal Official's Handbook (Price per copy is $3.00)

A check covering this order is enclosed ..... Please bill me ..... (Check one)

Name .....

City or Company .....

Address .....

City..... Zone..... State.....

A good way to find out is to read about the practical experience of other city officials who have problems like yours. This experience is described in the "Municipal Official's Handbook" by William S. Foster, Engineering Editor of *The American City*. The latest methods on street construction and maintenance, snow removal, street cleaning, and refuse collection and disposal are explained in detail. Write us today for your copy.

Improved Dredge Pump

Pumps, cautions the Morris Machine Works, are the heart and foundation of your investment for any dredging or hydraulic control system, and should be selected with the utmost care. They should be durable, reliable, and simple to operate, functioning on minimum hp, and requiring little maintenance.

An improved Morris dredge pump that meets all these requirements is now offered in two size ranges, the GA and GAF, both of which combine the lower speeds of the former Morris F pump, with the modern hydraulic design, high heads, and efficiency of the former G pump. They include a giant shaft and oversize bearings, a longer-wearing impeller, heavy volute casing, and right-angle bracing for positive alignment. Thicker sections are featured at points of greatest wear, and good vacuum performance is assured.

Bulletin 184 describes the new Morris dredge pump in detail. For your copy, write the MORRIS MACHINE WORKS, BALDWINSVILLE, N. Y., or you may use the Post Card on the colored page in this section. Circle No. 878.

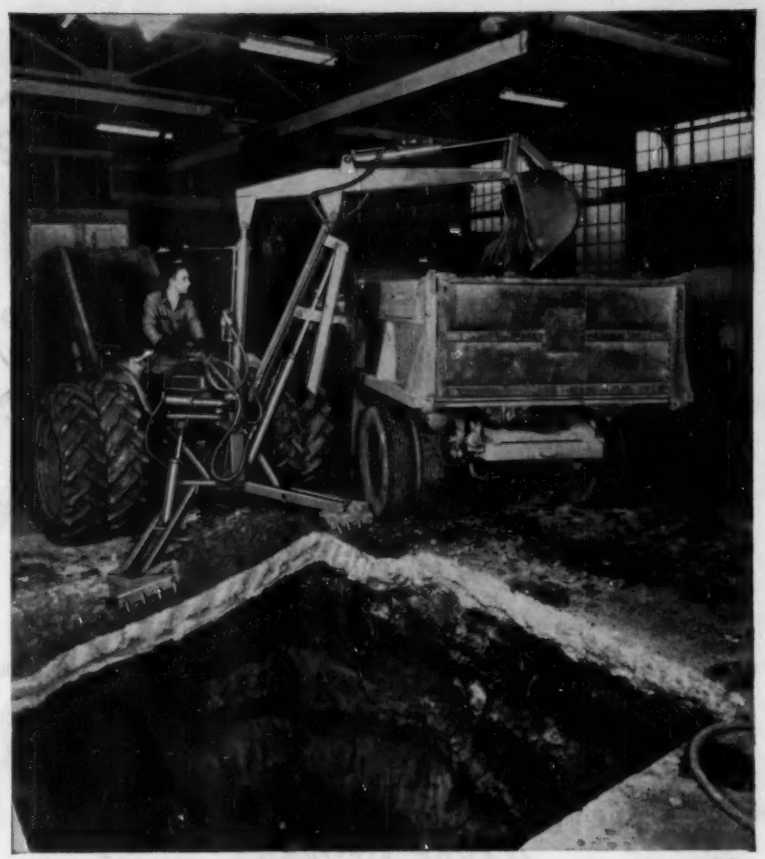
SODIUM SILICOFLUORIDE

(Fluosilicate)

Inquiries Invited!

TENNESSEE TC CORPORATION

1028 Connecticut Ave., N. W.
WASHINGTON 6, D. C.



Get Into Tight Spots at a Profit ...With a Sherman Power Digger!

Here's real proof of the compactness and maneuverability of the Sherman Power Digger! The job: Dig a 6 foot deep machine foundation hole 10 feet square in a working area only 20 feet square, with overhead beams and lights reducing the ceiling limit to less than 10 feet in some spots.

The floor was 8 to 10 inches of concrete, reinforced with ¼ inch steel rod. It was broken up with air tools, then loaded into a dump truck by the digger. Manual loading would have been difficult because of the reinforcing rods, but these presented no problem when loaded mechanically.

Digging and loading took less than four hours, in spite of the limited maneuvering area. Estimated time for hand labor: Three men working about 2½ days!

If you now excavate by hand, or if your heavier power equipment cannot work in tight spots, you'll profit with a Sherman Power Digger. It's compact, flexible, fast, easy to operate. It costs little to buy, less to maintain, quickly pays for itself. For the whole story, write today for Bulletin No. D-54

Designed, Engineered and Manufactured Jointly by
SHERMAN PRODUCTS, Inc.
Royal Oak, Michigan
WAIN-ROY CORPORATION
Hubbardston, Mass.

Patent No. 2,303,852
Other patents pending
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Sherman
PRODUCTS, INC.
ROYAL OAK, MICHIGAN

HOW MUCH TIME?

WHEN WILL YOUR CD WARNING SYSTEM BE CALLED INTO ACTION... *MAYBE TOMORROW... MAYBE NEVER?*

Let's hope it's not too late! Every passing hour leaves you less time to get prepared. Don't gamble by further postponements. It's still not too late to make your plans and apply for Federal Matching Funds; contact your state or local director of Civil Defense, he is aware of what other communities have done to provide adequate protection against disaster.

Over 250 American Communities have chosen to be protected by FEDERAL AIR RAID SIRENS. There is a definite reason why this great majority has selected Federal Sirens for basic or "complete" coverage. Write us for a list of these "FEDERAL PROTECTED" cities, complete literature and your request for expert assistance in setting up a Federal System.

FEDERAL SIGN and SIGNAL CORPORATION

FORMERLY: FEDERAL ENTERPRISES, INC.

8756 SOUTH STATE STREET • CHICAGO 19, ILLINOIS

Purchasing

Make Your Own Meter Box Barrels

The little water department that needs meter box barrels and discovers that it is either difficult or inconvenient to get concrete or vitrified tile, can take advantage of this handy, inexpensive way of making the barrels out of concrete.

THE FORD METER BOX CO., INC., WA-

Here is the way a recently poured barrel looks, using Singl-Use Fiberforms.

BASH, IND., has developed a Singl-Use Fiberform that permits a water-works man to make excellent barrels at low cost. The inner and outer parts of each form are rounded by simple steel rings. The forms are waxed so that a wet concrete mixture can be poured between them and be left to set without sprinkling.

While the Fiberforms are used but once, their low cost does not make this an important factor. Moreover, it eliminates the labor of cleaning and oiling the forms, and permits several to be made at a single pour.

The cost of each Ford Singl-Use Fiberform ranges from 75c to $1.50. The filling plate and form rings are inexpensive and can be used repeatedly. The labor can be estimated at 20 to 30 minutes for one man.

The Ford Meter Box Co. reports that many large water departments are finding Singl-Use Fiberforms handy, too, particularly when they need meter boxes in a hurry and don't feel justified in getting steel forms to fill this emergency need.

A complete description of Ford Fiberforms is available directly from the manufacturer, or you may use the Post Card located for your convenience on the colored page in this section. Circle No. 888.

Only
A GIANT PUMP
can do YOUR BIG pumping job!

Morris MIXED FLOW PUMPS

For large quantities of sewage, drainage, irrigation or flood water, a giant Morris Mixed Flow Pump will handle the job efficiently, quietly and dependably. Protect and insure your community against the disaster of pump failure. Play safe with Morris Pumps. They have more than just correct "book design," they have the *extra stamina* to withstand the brutal punishment frequently imposed by unusual conditions.

TROUBLE-FREE FEATURES

- In the Morris Mixed Flow Pump liquids are directed to the impeller eye without the use of troublesome guides or diffusion vanes.
- The simple but scientifically correct design of the casing permits free, smooth flow of liquids with minimum eddying and turbulence.
- The impellers are carefully engineered to avoid cavitation. They are protected by renewable wearing rings on both the hub and suction sides.
- Renewable shaft sleeve protects the shaft through the stuffing box.
- Handholes or manholes in casing permit easy access to essential points of the pump.

Morris Mixed Flow Pumps are regularly built in sizes ranging from 12" to 60" diameter discharge and are ideally suited for capacities to 150,000 gpm in services like Sewage Treatment, Drainage, Irrigation, Flood Control.
Built in both *horizontal* and *vertical* types. For special use, Morris builds Mixed Flow Pumps to your specifications. SEND FOR FREE BULLETIN 178.

MORRIS MACHINE WORKS
Baldwinsville, N. Y.
Sales Offices in Principal Cities

MORRIS Centrifugal Pumps

PHILADELPHIA ORDERS 184 ROTO-PAC UNITS

CITY ESTIMATES 600,000 LBS. MORE REFUSE COLLECTION PER DAY!

The City of Philadelphia has just ordered 184 Roto-Pac Refuse Collection Units. This order was based on a 2 year comparison between escalator-type compaction and rear-door compaction. On the basis of daily tests run during the past 2 years the officials of the City of Philadelphia estimate that the escalator-compactor type of refuse collection unit will carry 600,000 pounds more refuse per day than rear-door compaction vehicles.

Your city can achieve faster, cleaner and more economical refuse collection with Roto-Pac . . . the modern refuse collection unit.

★ *CHECK THESE FEATURES* ★

- AUTOMATIC CONTINUOUS LOADING
- AUTOMATIC CONTINUOUS PACKING
- GREATER COMPACTION
- LOWEST LOADING HEIGHT
- LOWEST OPERATING PRESSURE (LESS ENGINE WEAR)
- HANDLES STRAIGHT ASH LOADS
- DOUBLE PIVOT TYPE TELESCOPIC BODY HOISTS
- LOWER OPERATION COSTS
- DOUBLES AS SNOW-HAULING VEHICLE

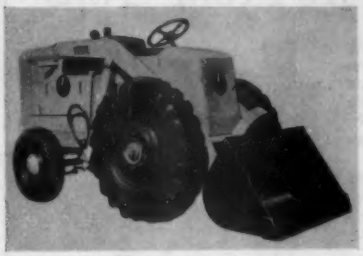
For further information...

or a demonstration ...write

CITY TANK CORP.
53-09 97TH PLACE
CORONA, LONG ISLAND, N. Y.

SALES AND SERVICE IN ALL PRINCIPAL CITIES

Improved Front-End Shovel Loaders



Improved to feature a torque-converter drive as standard equipment, new models of the "HA" and "HAH" front-end shovel-loaders reduce gear shifting and "clutching," assuring faster cycles and a higher sustained output.

The "HA" shovel-loader has a "pay-load" capacity of 16 cubic feet and a "struck-load" capacity of 12 cubic feet. It has a 2-speed, full reversing transmission, providing speeds up to 11 mph.

Equipped with power steering, the "HAH" unit has a 4-speed, full reversing transmission, providing 4 speed ranges up to 23 mph. "Pay-load" capacity is 24 cubic feet, and "struck-load" capacity, 18 cubic feet.

THE FRANK G. HOUGH CO., 710 SUNNYSIDE AVE., LIBERTYVILLE, ILL., will furnish details. Write, or use the Post Card in this section. Circle No. 876.

Bucket Loader Gets Extra Reach

Cities can use this new 4-wheel drive rubber-tired loader with its 1-cubic yard bucket for backfilling, stockpiling, loading, and street-maintenance operations, reports the TRACTOMOTIVE CORP., of DEERFIELD, ILL.

The model TL-12 Tracto-Loader weighs about 12,000 pounds, and is equipped with rear wheel power steering, a clutch-type transmission with four speeds in each direction, a torque converter drive with a 3 to 1 torque multiplication ratio, and ground clearance of 15 inches.

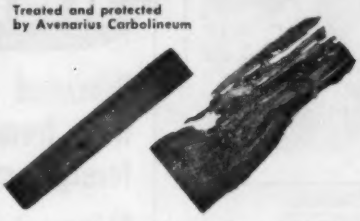
With an overall width of only 86 inches, the unit boasts a 62½-inch tread on both front and rear wheels. Clearance under the bucket cutting edge, when dumped at maximum raise, is 8 feet. The machine, however, will dump into a truck with sideboards nearly 10 feet high if the bucket is retracted before backing away from the

truck. Extra reach permits the unit to dump its load in the center of the truck body.

Write directly to the Tractomotive Corp., or use the Post Card on the colored page in this section. Circle No. 891.

AMERICA'S
HEADQUARTERS
FOR
FIRE EQUIPMENT
AND
POLICE EQUIPMENT
•
WRITE FOR
NEW CATALOGS
•
W.S. DARLEY & CO.
ESTABLISHED 1908
CHICAGO 12, ILLINOIS

EXTEND THE LIFE OF WOOD
with
CARBOLINEUM
Treated and protected
by Avenarius Carbolineum



Not treated and almost completely
destroyed within a short time.

Stop decay; stop termites. AVENARIUS CARBOLINEUM treated wood lasts 2 to 10 times longer than untreated wood.

Use on new construction; repairs or structures already in use. Apply at job site — brush, spray or quick dip — no skilled labor required.

Over 4 times richer than creosote in wood-preserving oils. Used by leading industries since 1876.

Write for booklet and prices.

AVENARIUS
CARBOLINEUM

CARBOLINEUM WOOD
PRESERVING CO.
528 W. HIGHLAND BLVD. • MILWAUKEE 3, WIS.

UNDERGROUND PIPING JOBS DONE
IN LESS TIME AT LOWER COSTS

Here's the quick, simple way to install pipe under streets, walks, tracks, floors and lawns. With a GREENLEE Pipe Pusher *one man* pushes pipe *under* obstacles. No tearing up concrete, lawns, floors. Eliminates extensive ditching . . . no tedious tunneling, back-filling, repaving. Cuts job time to a fraction . . . GREENLEE Pipe Pusher often pays for itself on first job. Get facts today.

GREENLEE

Greenlee Tool Co., 2026 Columbia Ave., Rockford, Ill.

Save money on the signs that last a lifetime!

Break-Proof SY-LOY Plastic Traffic Signs!

The General Tire and Rubber Co. and Municipal Street Sign Co., introduce SY-LOY, the miracle plastic. The SY-LOY used in our traffic signs is the same used for the bodies of some of America's leading autos. SY-LOY signs are rustproof, have built-in color and need no maintenance... truly signs that last a lifetime!

FREE TRIAL! We pay the freight on your first order, we're so sure "MUNICIPAL" SY-LOY SIGNS can solve your traffic sign headache. If you don't agree after seeing, testing and using, return them at our expense. We know though that you'll use and specify SY-LOY, the sign of tomorrow.

The new white on red 24" x 24" Stop Sign fully reflectorized . . $5.85 each (26 or more).

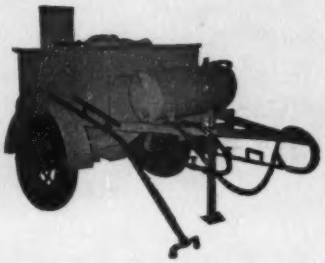
Available (plain or reflect.) in all standard sizes and legends.

REQUEST DETAILED TECHNICAL SPECIFICATIONS

MUNICIPAL STREET SIGN CO., Inc.
777-9 Meeker Ave., B'klyn, N. Y.

White Heating Kettles Have Fire-Proof Tops

Cut-back and highly inflammable road repair material can be heated safely in White kettles. FIRE-PROOF top reduces fire hazard.
White asphalt and tar kettles are extensively used. They give long life and satisfaction.
Plain kettles or with hand or engine driven spray pumps for patching pavement. Thermometer, barrel hoist, warming hood extra. All oil burning. Semi-elliptic springs, pneumatic tires.
65, 110, 165, 220, 300 gallon capacities.
Model F-10 is oil jacketed, to heat elastic joint filler.



Other Products

CONCRETE VIBRATORS
Gasoline Engine and Electric Motor Driven Models

FRONT END LOADERS
for Industrial Tractors

ASPHALT PLANTS
Portable—Stationary

KEROSENE TORCHES
3 to 20 gal. capacities

Write for Circulars and Name of Nearest Dealer

White Mfg. Co.

ELKHART 1 **INDIANA**

Public Property PROTECTION is our business

For your protection Stewart produces chain link wire and iron picket fence; wire mesh partitions; wire window guards; steel folding gates. Also flagpoles; settees; bronze plaques and other metal specialties. Write for catalogs. Please mention products in which you are especially interested.

THE STEWART IRON WORKS CO., INC.
2121 Stewart Block, Cincinnati 1, Ohio
Experts in Metal Fabrications since 1886

Stewart IRON and WIRE FENCES

FILTER SAND AND GRAVEL

Produced from an inland pit hence free from river contamination and foreign matter.

Shipment in bulk or bagged.

Many of the larger filter plants throughout the United States are equipped with our products.

PROMPT SHIPMENT

Inquiries and orders solicited.

NORTHERN GRAVEL COMPANY
Muscatine, Iowa
P. O. Box No. 307 Phone 4261

Purchasing

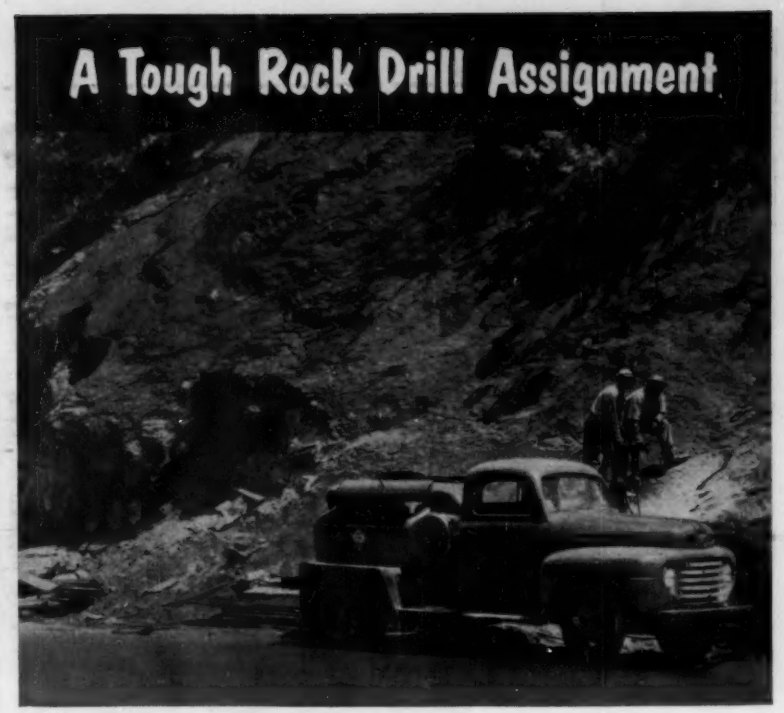
Schlenz Heads Pacific Flush Tank

Harry E. Schlenz

A recent meeting of the board of directors of the PACIFIC FLUSH TANK CO., 4241 RAVENSWOOD AVE., CHICAGO 13, ILL., resulted in the selection of Harry E. Schlenz to succeed Lester E. Rein as company president. Mr. Rein, who has served as president since 1934, was elected chairman of the board.

Other officers announced by the company include Lawrence E. Langdon, vice-president and sales manager; Clifford B. Cox, secretary; Dorothy M. Barwell, treasurer; and Newton C. Turcot, controller.

Active in sales promotional work with the company since 1930, Mr. Schlenz was appointed secretary in 1934, and vice-president and sales manager in 1936. Mr. Langdon joined Pacific Flush Tank as chief engineer in 1932, and has served as secretary and treasurer.



But Nothing Unusual for a

SCHRAMM 125 C.F.M. AIR COMPRESSOR

THE JOB . . .

- Removing ledge of rock to straighten out hazardous bend in road.
- Two men required to steady rock drill because of steep incline.

THE COMPRESSOR . . .

- 125 c.f.m. UNISTAGE equipped with Pneumastat; fuel savings up to 50%.
- Cam operated mechanical intake valves provide greater volumetric efficiency.

- Sizes from 20 to 600 c.f.m. Various types of mountings.

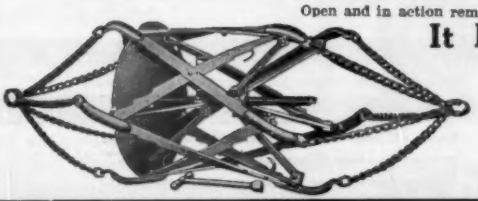
WRITE FOR CATALOG 5101 A

SCHRAMM, INC.

The Compressor People · WEST CHESTER · PA.

EXPANDING ROOT CUTTER & SEWER CLEANER

Open and in action removing roots and caked sediment like this.



It Fits in on Every Sewer Cleaning Job

Adjusted in 30 seconds to fit any sewer from 8 to 30 inches.

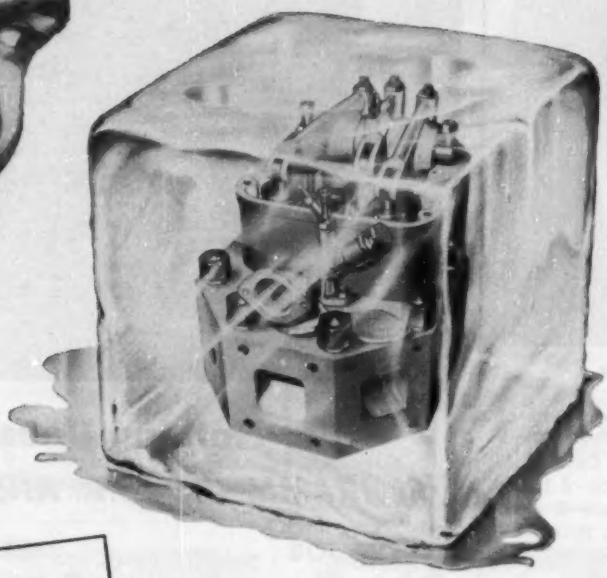
Will clean the entire sewer wall, top, and sides as well as the bottom, cutting and removing the roots and caked sediment, putting the sewer system in almost 100% clean condition.

Write for our new catalog on complete sewer cleaning equipment.

EXPANDING SEWER MACHINE COMPANY

108 East Walnut St. **Nappanee, Ind.**

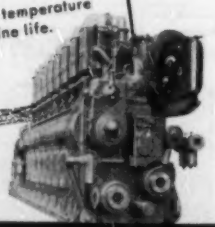
Enterprise Diesels keep a Cool Head



Check these points on the Enterprise Cooling System

- Engines operate at correct temperatures ...never too hot or too cold.
- Large water passages provide for adequate water circulation through cylinder head, and assure uniform cooling of inlet and exhaust valves.
- Elimination of blind pockets in circulating system overcomes "hot spots."
- Cylinder liners are kept at best temperatures for efficient heat transfer and reduced liner wear.
- Reduced wear due to proper temperature control prolongs useful engine life.

There is nothing finer in Heavy-duty Diesels!



No hot spots, improved operation, reduced wear... assured by ENTERPRISE controlled temperature

Close engine temperature control is given special attention by ENTERPRISE engineers. Thirty-four years of continuous research has produced these modern engines that never run too hot or too cold in any critical area or part!

Correctly engineered circulation maintains a controlled temperature differential along the entire effective cylinder length and through the cylinder heads. This efficient, uniform cooling affords protection against wear and from stresses induced by large temperature differences.

In short, you get maximum life from parts subject to heat, while keeping maintenance and repair to a minimum... good reasons you should take a look at ENTERPRISE before you buy.

Enterprise
DEPENDABLE
Diesels

ENTERPRISE ENGINE & MACHINERY CO.
18th & Florida Streets, San Francisco 10, California
A SUBSIDIARY OF MINERAL METALS CORPORATION
Boston · Chicago · Denver · Kansas City · Los Angeles
Minneapolis · New Orleans · New York · San Diego
San Francisco · Seattle · St. Louis · Washington, D.C.
DIESEL ENGINES • OIL BURNERS • PROCESS MACHINERY

Purchasing

Provides Low-Cost Curbing

Utilizing a new method of laying concrete curb, many cities throughout the country are putting down 1,500 feet of curb per day at a cost of about 33 cents per lineal foot. Here is how it's done:

Concrete of reasonably dry mix, asphalt at approximately 220 degrees, or

soil cement is fed into the hopper of a Canfield curb-laying machine, and is there extruded through worm gear into the curb mold under high pressure. The compaction of the mass causes the machine to move backward on the line marking, where a hot application or tack coat of emulsified asphalt is first put down to receive and bond the curb to the paved area. Three men are required to operate the machine, and on straight runs, up to 1,500 feet can be laid in an 8-hour day.

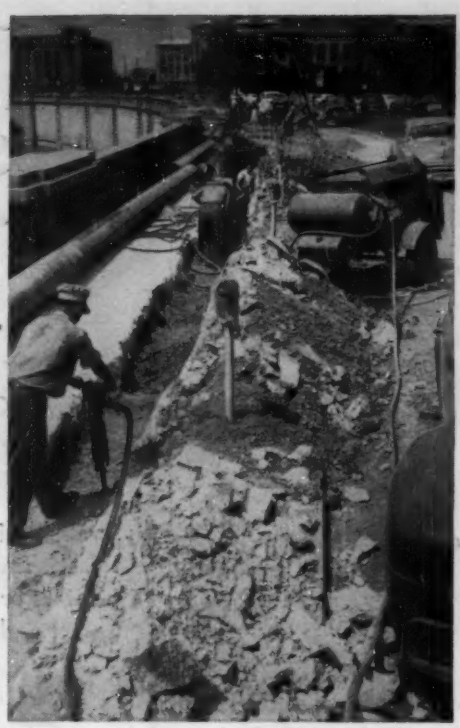
The Canfield automatic curb layer will place concrete curb on existing streets and roads where no curbing was originally provided. It can be used on city streets and parking lots, in recreation parks, and for channelization on highway traffic projects.

For full information on the new curb layer, write THE CANFIELD CORP., SALISBURY, N. C., or take advantage of the Post Card on the colored page in this section. Circle No. 903.

Steel Curbing

The production of steel curbing for edging municipal walks, lawns, and parking areas, which was temporarily discontinued during World War 2, has been resumed by JOSEPH T. RYERSON & SON, INC., CHICAGO 80, ILL., according to a recent announcement. This curb-

(*Continued on page 223*)



Same tools . . . do 30% more work with JAEGER 125's

Capacity to get more work out of today's heavy air tools has made the "125" the most popular of all compressor sizes. Jaeger established this 125 rating 6 years ago and guarantees to deliver this volume at lowest cost per ft. of air.

←— To speed laying of pipeline in this busy boulevard, a pair of Jaeger 125's were used in place of obsolete 105 ft. compressors to do the job 30% faster.

Other "Jaeger standard" sizes 75 to 600 ft. See your Jaeger distributor, or write for Catalog JC-1.

THE JAEGER MACHINE COMPANY 505 Dublin Avenue Columbus 16, Ohio

PUMPS • MIXERS • TRUCK MIXERS • LOADERS • PAVING MACHINES

got ~~ringer~~ EARS?

BE ON THE CONSTANT ALERT

All Departments Can Now Listen to Every Vital Message

MONITORADIO for a thoroughly coordinated 2-way communication system.

Now every member of every department can have radio communication for as little as $49.95

Write today for further information.

- Nation's most complete line of monitor receivers.
- Crystal controlled or tunable for any VHF FM communication system.
- Mobile or stationary receivers.
- Prices to meet any budget.
- Certified for civil defense use.

MONITORADIO RADIO APPARATUS CORPORATION

55 North Jersey St., Indianapolis, Ind. Phone: ATlantic 1624

BAVIN GLASS BEAD DISPENSER

For Street, Highway and Airport Marking

Easily attached to any striping machine, the BAVIN dispenser distributes glass beads on any width strip (solid or skip line) from 2" to 6". Beads are dispensed **automatically** regardless of speed of travel. Power and metering are derived from friction pulley engaging wheel of striping machine. A single power unit operates from 1 to 3 dispensers.

OWN YOUR OWN BEAD DISPENSER

Write for circular

G. D. BAVIN CO. 2500 WEST SIXTH STREET BUILDING LOS ANGELES 57, CALIFORNIA

...when speeding is your urgent traffic problem

Fast drivers are not only a menace to themselves and other motorists, but they also tie up valuable men in traffic control duty.

Speed Watch is the new electrical timing **system** that "clocks" speeders and actually reduces excessive speeding...first day in operation. Speed Watch is compact and fully portable... permitting set-up and effective operation by a single officer. The spare man can be reassigned!

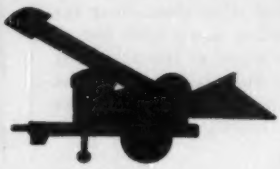
Request additional information on coupon below. No obligation.

TRAFFIC HOUSE, INC.
202 NATIONAL BANK BLDG.
DECATUR, ILLINOIS

Gentlemen:
Please send Speed Watch Folder Number 14

NAME_____
ADDRESS_____
CITY_____ STATE_____
TITLE_____

SMOKELESS BRUSH DISPOSAL



Asplundh Chippers eliminate the danger and nuisance of burning brush, and cut hauling costs.

Available in three sizes, either as self-contained Trailers or for mounting on trucks, tractors or skids. For information write 507 York Road, Jenkintown, Pa.

ASPLUNDH CHIPPER CO.

A STATEMENT OF ADVERTISING PRINCIPLES

1. Good Advertising — aims to inform the consumer and help him to buy more intelligently.
2. Good Advertising — tells the truth, avoiding misstatement of facts as well as possible deception through implication or omission. It makes no claims which cannot be met in full and without further qualification. It uses only testimonials of competent witnesses.
3. Good Advertising — conforms to the generally accepted standards of good taste. It seeks public acceptance on the basis of the merits of the product or service advertised rather than by the disparagement of competing goods. It tries to avoid practices that are offensive or annoying.
4. Good Advertising — recognizes both its economic responsibility to help reduce distribution costs and its social responsibility in serving the public interest.

Advertising Federation of America

Purchasing

(Continued from page 221)

ing is easy to install, and unlike ordinary types of curbing, won't crack, break, or splinter. It is furnished with a heavy coat of green paint which blends well with public lawns.

Designated "Estate" curbing, the 16-foot lengths are made of ¼- x 5-inch steel, with 7 tapered stakes, 18 inches long, for each section. These stakes are

Steel stakes are used to anchor Ryerson "Estate" curbing in the ground.

driven through pockets pressed into the sides of the curbing, providing ample anchorage in the ground. Connecting joints are designed to accommodate inclines as well as level surfaces, and the curbing may be formed to meet the requirements of any curved boundaries.

An illustrated folder describing the steel curbing in detail is available directly from the company, or you may use the Post Card on the colored page in this section. Circle No. 881.

Exclusive! HOBBY-HORSE SWING SET

BURKE
PLAYGROUND EQUIPMENT

Complete line of playground, home, playschool play devices.

BURKE EXCLUSIVES
★ HOBBY-HORSE
★ GLIDER
★ CLIMB-A-ROUND

Write for special literature catalog, price list, booklet "Planning Your Playground" or specifications.

B B B

THE J. E. BURKE
PLAYGROUND EQUIPMENT CO.
Factories at
FOND DU LAC, WISCONSIN
BOX 986, NEW BRUNSWICK, N. J.

Destroy flies, mosquitoes, and other pests with *IRON AGE* Mist Sprayers

For a healthier community . . . for a more comfortable community . . . Iron Age Mist Sprayers are a *must* for community insect control! Parks, playgrounds, golf courses, swamp areas are completely protected *for long periods of time* because Iron Age Mist Sprayers have a lasting kill.

Iron Age Model 125 EAP (shown above) delivers up to 11,000 cubic feet of air per minute at 90 to 125 miles per hour. Axial flow fan operates at 87% efficiency. Pump has drive gears completely enclosed . . . handles all solutions that dissolve or emulsify. Special pump (available as optional equipment) handles solutions remaining in suspension. Find out how Iron Age Mist Sprayers can make your pest control program far more effective at less cost. Mail coupon below for details—no obligation.

Iron Age Mist Sprayers give you these advantages:

- Greater community health and comfort
- Superior control of flies and mosquitoes
- Efficient use of power, material, equipment
- Choice of pumps for different solutions

OLIVER
IRON AGE
Finest in Farm Machinery

MAIL TODAY FOR FREE INFORMATION

THE OLIVER CORPORATION, Dept. 36, 400 W. Madison St., Chicago 6, Ill. AC-3

Gentlemen:

☐ Please send me information on Iron Age Mist Sprayers

Name_____

Title_____

Address_____

City_____ Zone_____ State_____

Sealed bids for the purchase of U.S. WOLCOTT, U.S. LIMON,

and other items of barges, launches, and quarterboat offered for sale under Invitation 80 by Panama Canal Company will be received until 10:30 A.M., June 25, 1954 and at that time publicly opened in the office of Procurement Officer, Panama Canal Company, 24 State Street, New York 4, N. Y.

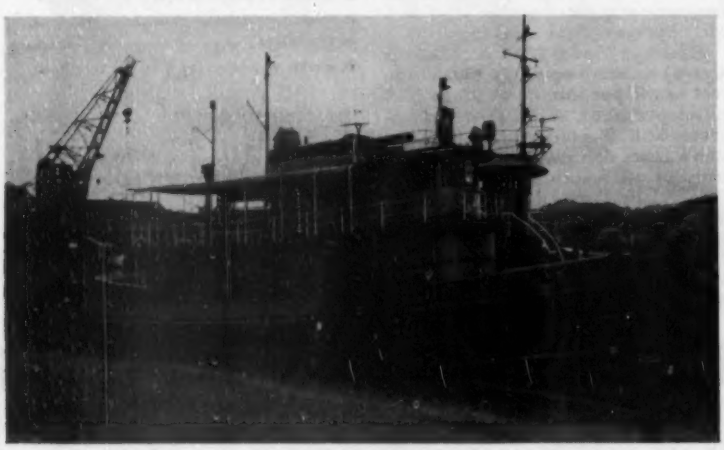
The **U. S. WOLCOTT,** originally a Coast Guard cutter, rebuilt in 1938, was re-engined in 1947 with 2-F-M, 2 cycle, 6 cylinder, 180 HP diesel engines and 1 Superior 6 cylinder, 4 cycle, 60 HP engine. It is riveted steel consruction and the hull is in excellent condition. The overall length is 100 feet; beam 23 feet; draft 8 feet, 6 inches; displacement 210 long tons. It is equipped with 2-10 KW generator sets, 1 Brunner ice machine and a completely furnished galley with oil burning galley range, stainless steel walk-in refrigerator, tile deck.

The luxurious appointments consist of walnut veneer paneled dining salon, owner's cabin and lounge, private cabin with bath forward for owner, 3 double cabins for passengers, 1 master's cabin aft of pilot house, 1 chief engineer's cabin, crew space for 4 persons.

The general overall condition is better now than at the time of our acquisition in 1951.

Here is a very low cost fire and police boat with excellent living quarters practically new engines, and ample auxiliary power. This boat is also suitable for use as a tug boat in waters where the current and tide are less than 4 knots.

With minor changes it could be adapted to sport fishing service. The third screw could be a fuel saver during trolling.

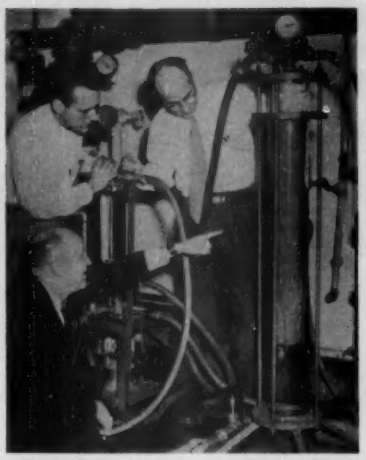


The **U. S. LIMON** was built in 1942. Welded steel construction, overall length 100 feet; bean 25 feet 3¼ inches, mean draft 10 feet, 10 inches; displacement 390 long tons. Main engine 6 cylinder F-M 1050 HP direct drive to propeller; Appointments: 2 cabins, crew space for 10. Galley: standard for tug boats. Hull is in excellent condition. This boat is suitable for use as a tug boat or harbor tow boat.

Details concerning these ships and the floating equipment offered under this invitation may be obtained along with bid forms, by application to Procurement Officer, Panama Canal Company, 24 State Street, New York 4, N. Y.

PANAMA CANAL COMPANY **24 State Street New York 4, N. Y.**

Fifth Annual Water Treatment Clinic



Mayor Joseph P. Lawlor, president of the General Filter Co., explains the operation of the Diatomite filter plant in swimming pools to C. V. Flemming of London, Ontario, Canada, and Joseph Phillips of Orlando, Fla.

Representatives of water-treating companies from the United States and Canada gathered at Ames, Iowa recently, for the fifth annual water-treating clinic. They were guests of the GENERAL FILTER Co. during a 5-day program covering all phases of treating water for municipal, military, and industrial systems.

The General Filter Co., with 40 branch offices throughout the United States and Canada, designs, constructs, and installs all types of water-conditioning equipment. Its founder and president, Joseph P. Lawlor, was elected mayor of the City of Ames.

Lights Outdoor Areas

A new aluminum floodlight for after-dark maintenance and recreational activities, utilizes a 200-watt general service lamp that throws a powerful 946 candlepower beam, and is equipped with a ribbed trunnion bracket, permitting 360° vertical or horizontal rotation. Called the L-66, it is made by the GENERAL ELECTRIC Co., WEST LYNN 3, MASS.

The new L-66 weighs only 4 pounds, and is provided with a large aluminum base that is suitable for both portable use and permanent mounting. The floodlight is equipped with a 6-foot

(*Continued on page 228*)

NO TRAFFIC TIE-UP

. . . on Street Repair Job in Waukegan, Illinois

BANTAM cleans city block-long trench in 2 HOURS!

On this street repair job in Waukegan, Ill., Carrier mounted BANTAM with Clamshell removed paving cut for sewer installation, excavated for new paving . . . was followed by ready-mix truck pouring new pavement!

1 MAN OPERATION WITH REMOTE CONTROL

"You can work real fast with a BANTAM on cramped city work like this," says Charles M. Jones, Operating Engineer, "AND, without tying up traffic!" REMOTE CONTROL made a one-man operation of the job. Jones simply started the truck engine and drove into position on the job by controls located in the basic cab . . . NO TRUCK DRIVER NEEDED!

"THIS MACHINE REALLY PAYS FOR ITSELF," said Jones. BANTAM's high-speed mobility lets operator drive over streets, alleys, into tight spots, as easy as a truck. 9 fast-change attachments mean that the BANTAM can handle dozens of jobs normally handled by expensive one-purpose equipment!

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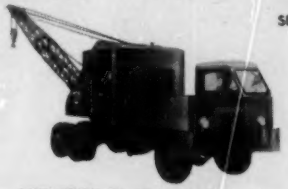
SB-AC-3



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COMPLETELY REMANUFACTURED - Includes NEW short block engine assembly, all-new Cab, Tires and many other parts.

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Pin Point Detection of Goldak's Model 620, saves you time and money, with immediate location of Buffalo Boxes, Valves, Covers and Buried Metals.

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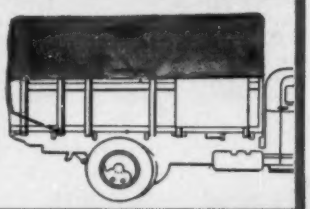

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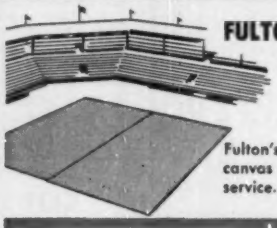

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Four-wheel hydraulic brakes for maximum safety. Cab protects against overhanging limbs. Greater visibility for driver.

Sweep more gutter miles per day . . . Maneuver easily around parked cars.

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Most For Your Money at Budget Time: Mobil-Sweeper

MANY COMMUNITIES are reporting three times the gutter miles at one-half the cost with MOBIL-SWEEPER—the *modern* machine that sweeps, sprays and carries the full load direct to the dump. Pick-up crews and expensive loading equipment are thus eliminated; more miles of streets are swept cleaner at lower cost.

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USS CYCLONE FENCE

UNITED STATES STEEL

Purchasing

(Continued from page 225)

neoprene-jacketed cord and molded plug, and includes a heat- and weather-resistant glass lens, a snap-ring clamping band for convenient lamp access, and a porcelain-based socket that maintains proper lamp focus. Knock-

outs in the base permit mounting on 3¼- and 4-inch outlet boxes.

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About People

From **De Leuw, Cather & Co.,** a firm of consulting engineers located in Chicago, Ill., we learn of the appointment of H. William Tate as executive vice-president of the newly organized De Leuw, Cather & Co. of Canada, Limited. Mr. Tate will maintain offices at 52 St. Clair Ave. East, Toronto.

Edward Schumann and R. G. Sampson have been appointed New York agents for the **American Water Softener Co., Inc.,** of Philadelphia, Pa. Additional news from American Water Softener Co. concerns the appointment of Howard G. Egginson as sales engineer for the company's water conditioning and waste treatment equipment in the Philadelphia area.

When **D. W. Onan & Sons Inc., Minneapolis,** Minn., expanded its sales promotion department to include advertising, the company chose George Burda, Onan sales promotion manager, to head the combined department. Mr. Burda, says General Sales Manager Hiram Hascall, will be assisted by Julius P. Grabow, assistant sales promotion manager; Russell V. Petersen, manager of literature production; and Virgil C. Gilbertson, manager of product publicity.

George Burda

Retiring as president of the **Hagan Corp.,** Pittsburgh, Pa., David J. Erikson will be succeeded by W. W. Hopwood, son of the company's founder, J. M. Hopwood. Mr. Erikson, who began with the combustion and chemical engineering and manufacturing firm in 1915, will continue to serve Hagan as a consultant.

Another retirement, this one of Herbert S. Atkinson as chief engineer of the Clam Shell Bucket Dept. of **The Hayward Co.,** is announced by Judson Hayward, president of the New York firm. Mr. Atkinson will be succeeded by his former assistant, Frank L. Meyer.

From Ralph E. Kramer, vice-president in charge of sales for the **Hammond Iron Works,** New York City, comes news of the appointment of Max G. Walker as new Hammond sales manager in the Southeastern part of the country. Formerly connected with the **Murphy Diesel Co.,** of Milwaukee, Wis., Mr. Walker will establish headquarters at the new Hammond Iron Works plant in Birmingham, Ala.

A new member has been added to the board of directors of **The Frank G. Hough Co.,** Libertyville, Ill. He is Milton J. Weber, Hough's vice-president in charge of procurement. The company also announces the election of Thomas F. Flood, a Hough director, as vice-president in charge of manufacturing.

George V. Dutney becomes the new special assistant to Robert E. Friend, president of the **Nordberg Mfg. Co.,** Milwaukee, Wis. Mr. Dutney is a former member of the Johns-Manville Corp. He will make his headquarters at Nordberg's New York office.

W. D. Lease, former sales promotion manager for the **Athey Products Corp.,** Chicago, Ill., now holds the position of vice-president in charge of Athey's new sales program. Other new officers reported by Athey President B. F. Lease, include R. W. Kling, vice-president in charge of engineering; C. E. Matthews, vice-president in charge of service and parts; and R. S. Hinds, treasurer and assistant secretary. Athey manufactures heavy equipment for use with Caterpillar diesel tractors.

W. D. Lease

The annual meeting of the Southeastern Section of the A. W. W. A. held at Greenville, S. C., was attended by a representative group of water works people in the Southeast. A luncheon was held on March 30, at which J. L.Hodgson, Southeastern sales manager of the **National Water Main Cleaning Co.,** was presented with an emblem in commemoration of his 35 years service with that company.

Mr. Hodgson accepts a 35-year service pin from J. A. Frank, vice-president and general manager of the National Water Main Cleaning Company, of New York City.

Leaving his position as president of the **Caterpillar Tractor Co.,** Peoria, Ill., to become chairman of the company's board of directors, Louis B. Neumiller is succeeded as president by Harmon S. Eberhard, associated with Caterpillar for the past 16 years. Harry H. Fair, recently resigned board chairman, continues as a director.

L. B. Neumiller **H. S. Eberhard**

R. B. Scott will manage the recently established Minneapolis branch office of **The Cooper-Bessemer Corp.,** reports Stanley E. Johnson, company vice-president and director of sales. Main offices of the firm are located at Mount Vernon, Ohio.

When Bernard E. Gray retires as president of **The Asphalt Institute,** New York City, early next month, he will be succeeded by J. E. Buchanan, current president of the University of Idaho.

After 43 years of service with the **United States Steel Corp.,** W. L. Schaeffer is retiring as advertising manager of the company's National Tube Division. The new advertising manager for the Division is Thomas W. Gamble.

Joseph Halperin, general manager of **Aeroil Products Co., Inc.,** South Hackensack, N. J., has been elected new Aeroil vice-president by the company's board of directors. Mr. Halperin, who has been associated with the firm since 1951, is largely responsible for the growth of Aeroil's Auto-Steam Cleaner Division.

Joseph Halperin

From the **Ward LaFrance Truck Corp.,** Elmira, N. Y., comes news of the appointment of a new vice-president and general manager, F. Norman Tracy. Other company appointments include E. L. Decker, sales manager; John J. Valego, purchasing agent; and Robert C. Hill, assistant to Mr. Tracy.

H. F. O'Brien, president of **The A. P. Smith Mfg. Co.,** East Orange, N. J., reports the appointment of Helmer Peterson as the firm's new plant superintendent. Mr. Peterson was formerly general manager of operations for the Mack Mfg. Co.

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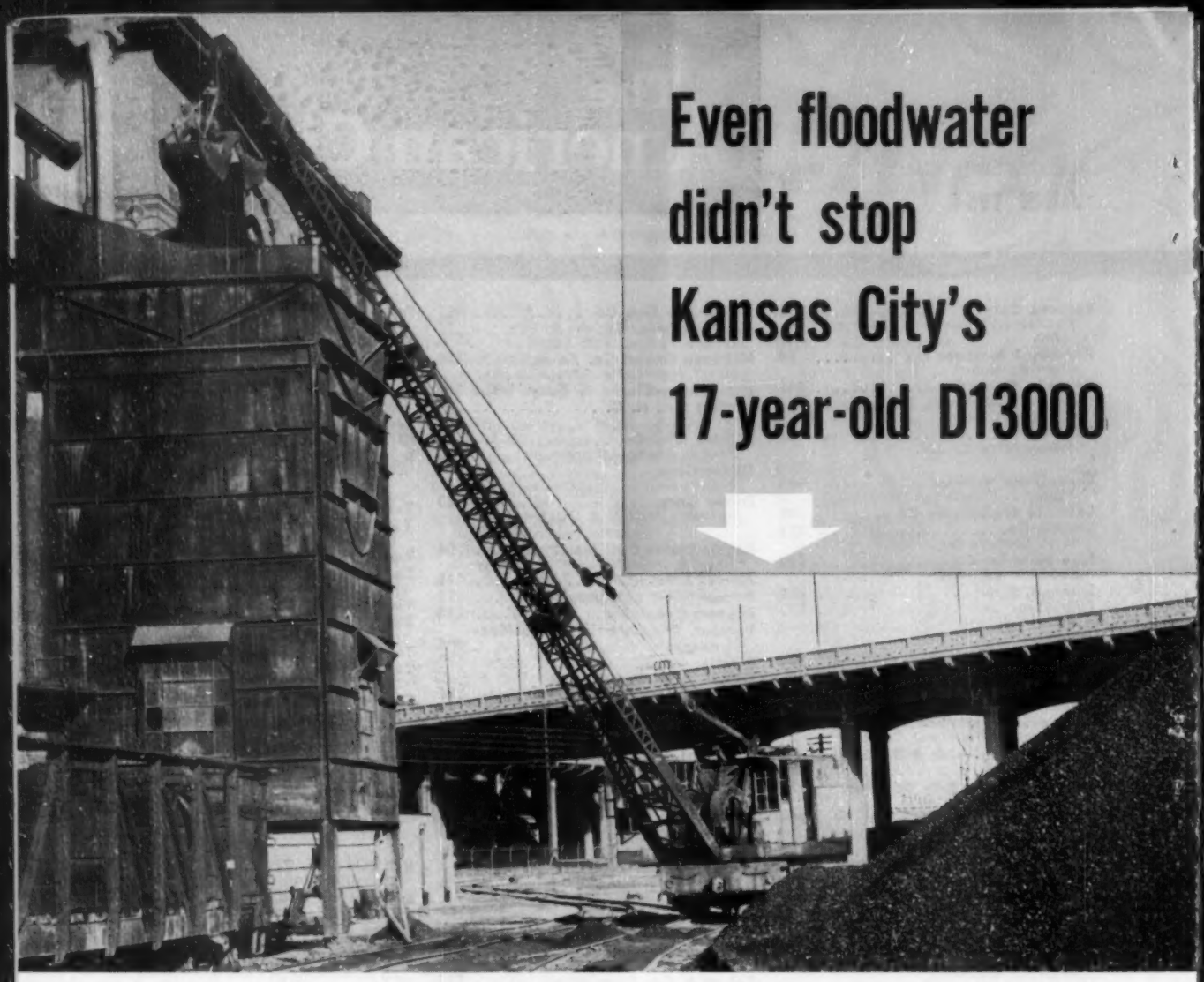

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